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(54) **Stabilized organic material**

Stabilisiertes organisches Material

Matière organique stabilisée

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(56) References cited:

EP-A- 0 200 190 CH-A- 484 695

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## Description

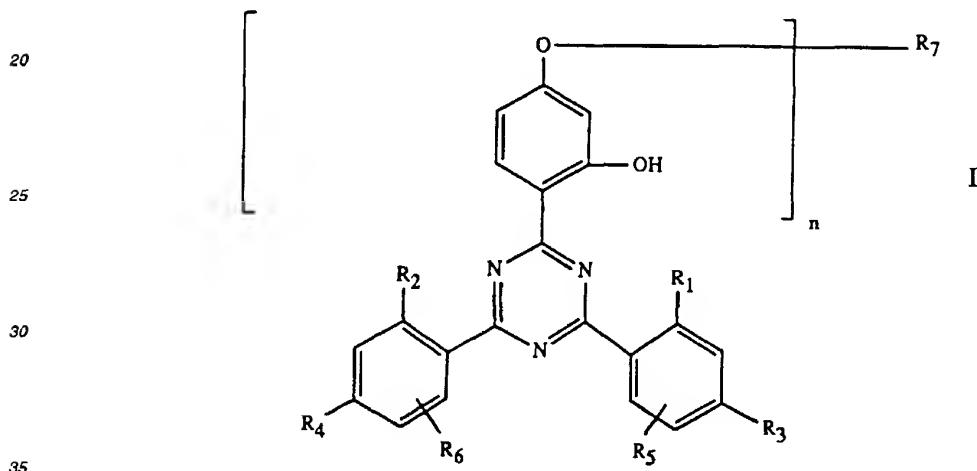
The present invention relates to an organic material containing, as stabilizers, a mixture of a sterically hindered amine and an o-hydroxyphenyl-s-triazine, and to novel o-hydroxyphenyl-s-triazine.

5 It is already known from US-Patent 4,619,956 that polymers can be stabilized against the action of light, moisture and oxygen by adding a mixture of a sterically hindered amine and an o-hydroxyphenyl-s-triazine. The triazines used in this context contain at least one phenyl group carrying a hydroxyl group in the o-position.

10 Triazine compounds of this type are relatively sparingly soluble in many substrates and tend to migrate. In accordance with the present invention, similar triazine derivatives which have an improved compatibility with or solubility in organic polymers are used.

15 The invention relates to an organic material which has been stabilized against damage caused by light, heat and oxygen and which contains

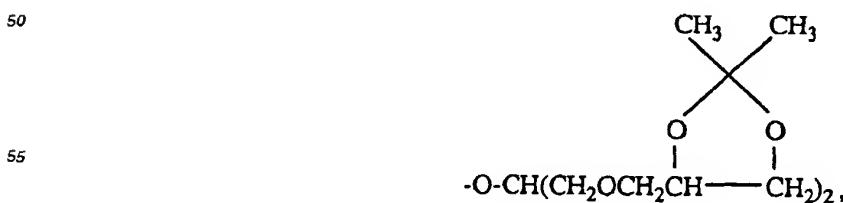
(a) at least one sterically hindered amine of the polyalkylpiperidine type and  
 20 (b) at least one o-hydroxyphenyl-s-triazine, wherein the triazine compound (b) is a compound of the formula I



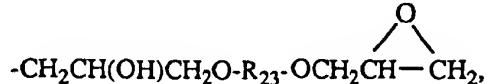
in which n is 1 to 4,

40  $R_1$  and  $R_2$  independently of one another are H, OH,  $C_1$ - $C_{12}$ alkyl, cyclohexyl or trifluoromethyl,  
 $R_3$  and  $R_4$  independently of one another are H, OH,  $C_1$ - $C_{12}$ alkyl, cyclohexyl,  $C_1$ - $C_{18}$ -alkoxy or halogen and, in the event that n = 1, can also be a radical  $-OR_7$ ,  
 $R_5$  and  $R_6$  independently of one another are H,  $C_1$ - $C_{12}$ alkyl or halogen,  
 $R_7$ , if n is 1, is

45 a)  $C_1$ - $C_{18}$ alkyl which is substituted by one or more of the groups OH,  $C_1$ - $C_{18}$ alkoxy,  $C_3$ - $C_{18}$ alkenoxy, halogen, phenoxy (which is unsubstituted or substituted by  $C_1$ - $C_{18}$ alkyl,  $C_1$ - $C_{18}$ alkoxy or halogen), furyloxy,

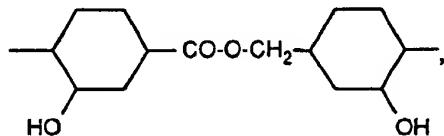


5 -COOH, -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>), -NHCOR<sub>11</sub>, -CN and/or by -O-CO-R<sub>11</sub>,  
 b) C<sub>4</sub>-C<sub>50</sub>alkyl which is interrupted by one or more O and can be substituted by OH or/and glycidyloxy,  
 c) C<sub>3</sub>-C<sub>6</sub>alkenyl,  
 d) glycidyl or a group

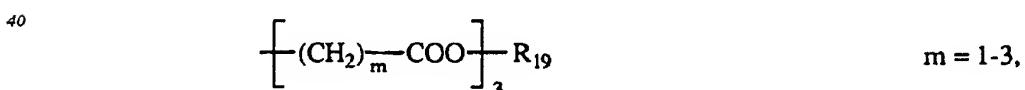


15 e) cyclohexyl which is unsubstituted or substituted by OH or -OCOR<sub>11</sub>,  
 f) C<sub>7</sub>-C<sub>11</sub>phenylalkyl which is unsubstituted or substituted by OH, Cl or CH<sub>3</sub>,  
 g) -CO-R<sub>12</sub> or  
 h) -SO<sub>2</sub>-R<sub>13</sub>,

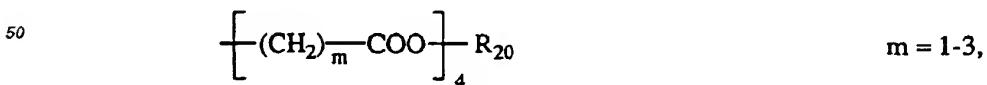
20 and if n is 2,  
 R<sub>7</sub> is  
 a) C<sub>2</sub>-C<sub>16</sub>alkylene,  
 b) C<sub>4</sub>-C<sub>12</sub>alkenylene,  
 c) xylylene,  
 25 d) C<sub>3</sub>-C<sub>20</sub>alkylene which is interrupted by one or more O and/or substituted by OH,  
 e) a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CO-NH-R<sub>17</sub>-NH-CO- or -(CH<sub>2</sub>)<sub>m</sub>COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub>- (in which m is 1 to 3) or



35 and if n is 3, R<sub>7</sub> is a group



45 and if n is 4,  
 R<sub>7</sub> is a group



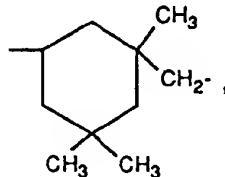
55 R<sub>8</sub> is C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>3</sub>-C<sub>18</sub>alkenyl, C<sub>3</sub>-C<sub>20</sub>alkyl which is interrupted by one or more O, N or S and/or substituted by OH, C<sub>1</sub>-C<sub>4</sub>alkyl which is substituted by -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) or -OCOR<sub>11</sub> and/or OH, C<sub>3</sub>-C<sub>18</sub>alkenyl, glycidyl or C<sub>7</sub>-C<sub>11</sub>phenylalkyl,  
 R<sub>9</sub> and R<sub>10</sub> independently of one another are C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>3</sub>-C<sub>12</sub>alkoxyalkyl, C<sub>4</sub>-C<sub>16</sub>dialkylaminoalkyl or C<sub>5</sub>-C<sub>12</sub>cycloalkyl, or R<sub>9</sub> and R<sub>10</sub> together are C<sub>3</sub>-C<sub>9</sub>alkylene or C<sub>3</sub>-C<sub>9</sub>oxaalkylene or C<sub>3</sub>-C<sub>9</sub>azaalkylene,

R<sub>11</sub> is C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>2</sub>-C<sub>18</sub>alkenyl or phenyl,  
 R<sub>12</sub> is C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>2</sub>-C<sub>18</sub>alkenyl, phenyl, C<sub>1</sub>-C<sub>12</sub>alkoxy, phenoxy, C<sub>1</sub>-C<sub>12</sub>alkylamino or C<sub>6</sub>-C<sub>12</sub>aryl amino or a group -R<sub>24</sub>-COOH or -NH-R<sub>17</sub>-NCO,  
 R<sub>13</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>6</sub>-C<sub>12</sub>aryl or C<sub>7</sub>-C<sub>14</sub>alkaryl,  
 R<sub>14</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl or phenyl,  
 R<sub>15</sub> is C<sub>2</sub>-C<sub>10</sub>alkylene, C<sub>4</sub>-C<sub>50</sub>alkylene which is interrupted by one or more O, phenylene or a group -phenylene-X-phenylene- in which X is -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- or -C(CH<sub>3</sub>)<sub>2</sub>-,  
 R<sub>16</sub> is C<sub>2</sub>-C<sub>10</sub>alkylene, C<sub>2</sub>-C<sub>10</sub>oxaalkylene or C<sub>2</sub>-C<sub>10</sub>thiaalkylene, C<sub>6</sub>-C<sub>12</sub>arylene or C<sub>2</sub>-C<sub>6</sub>alkenylene,  
 R<sub>17</sub> is C<sub>2</sub>-C<sub>10</sub>alkylene, phenylene, tolylene, diphenylenemethane or a group

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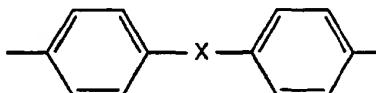
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R<sub>18</sub> is C<sub>2</sub>-C<sub>10</sub>alkylene or C<sub>4</sub>-C<sub>20</sub>alkylene which is interrupted by one or more O,  
 R<sub>19</sub> is C<sub>3</sub>-C<sub>12</sub>alkanetriyl,  
 R<sub>20</sub> is C<sub>4</sub>-C<sub>12</sub>alkanetetrayl,  
 R<sub>23</sub> is C<sub>2</sub>-C<sub>10</sub>alkylene, phenylene or a group

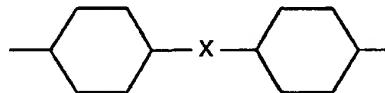
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or

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wherein X is O, S, SO<sub>2</sub>, CH<sub>2</sub> or C(CH<sub>3</sub>)<sub>2</sub>, and  
 R<sub>24</sub> is C<sub>2</sub>-C<sub>14</sub>alkylene, vinylene or o-phenylene.

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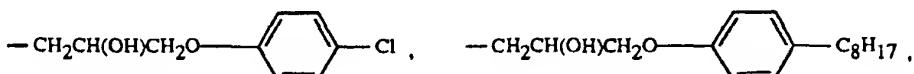
If one of the substituents in formula I is C<sub>1</sub>-C<sub>12</sub>alkyl, it can be unbranched or branched alkyl, for example methyl, ethyl, propyl, isopropyl, n-butyl, i-butyl, s-butyl or t-butyl, pentyl, hexyl, heptyl, octyl, 2-ethylhexyl, di-t-octyl, nonyl, decyl, undecyl or dodecyl. As C<sub>1</sub>-C<sub>18</sub>alkyl, R<sub>8</sub>, R<sub>11</sub> and R<sub>12</sub> can additionally be, for example, tetradecyl, hexadecyl or octadecyl.

As C<sub>1</sub>-C<sub>18</sub>alkoxy, R<sub>3</sub> and R<sub>4</sub> are preferably C<sub>1</sub>-C<sub>12</sub>alkoxy. The alkoxy radical is preferably unbranched. Examples of these are methoxy, ethoxy, propoxy, butoxy, hexyloxy, octyloxy, decyloxy or dodecyloxy.

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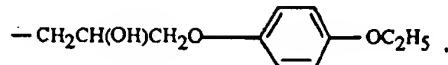
As substituted C<sub>1</sub>-C<sub>12</sub>alkyl, R<sub>7</sub> can be substituted by one or more of the groups OH, C<sub>1</sub>-C<sub>18</sub>alkoxy, halogen, phenoxy which is unsubstituted or substituted by C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen, -COOH, -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -NH(R<sub>9</sub>)(R<sub>10</sub>), -NHCOR<sub>11</sub>, -CN or -OCOR<sub>11</sub>. The following groups are examples of such substituted alkyl groups: -CH<sub>2</sub>CH<sub>2</sub>OH, -CH<sub>2</sub>CH(OH)CH<sub>3</sub>, -CH<sub>2</sub>CH(OH)C<sub>2</sub>H<sub>5</sub>, -CH<sub>2</sub>CH(OH)C<sub>6</sub>H<sub>13</sub>, -CH<sub>2</sub>CH(OH)C<sub>10</sub>H<sub>21</sub>, -CH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, -CH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>C<sub>2</sub>H<sub>5</sub>, -CH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>C<sub>4</sub>H<sub>9</sub>, -(CH<sub>2</sub>)<sub>3</sub>OH, -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O<sub>2</sub>C<sub>4</sub>H<sub>9</sub>, -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O<sub>2</sub>C<sub>12</sub>H<sub>25</sub>, -CH<sub>2</sub>CH<sub>2</sub>Ophenyl, -CH<sub>2</sub>CH<sub>2</sub>Cl, -CH<sub>2</sub>CH(OH)CH<sub>2</sub>Ophenyl,

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15 -CH<sub>2</sub>COOH, -CH<sub>2</sub>CH<sub>2</sub>COOH, -CH<sub>2</sub>COOC<sub>2</sub>H<sub>5</sub>, -CH<sub>2</sub>COOC<sub>8</sub>H<sub>17</sub>, -CH<sub>2</sub>CH<sub>2</sub>COOCH<sub>3</sub>, -CH<sub>2</sub>CH<sub>2</sub>COOC<sub>4</sub>H<sub>9</sub>,  
 -CH<sub>2</sub>CH<sub>2</sub>COOC<sub>12</sub>H<sub>25</sub>, -CH<sub>2</sub>CONH<sub>2</sub>, -CH<sub>2</sub>CONHC<sub>4</sub>H<sub>9</sub>, -CH<sub>2</sub>CON(C<sub>4</sub>H<sub>9</sub>)<sub>2</sub>, -CH<sub>2</sub>CH<sub>2</sub>CONHC<sub>12</sub>H<sub>25</sub>, -CH<sub>2</sub>CH<sub>2</sub>CON(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>,  
 -CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, -CH<sub>2</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>3</sub>NH<sub>2</sub>, -(CH<sub>2</sub>)<sub>3</sub>NHC<sub>4</sub>H<sub>9</sub>, -(CH<sub>2</sub>)<sub>3</sub>N(CH<sub>3</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>3</sub>N(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>,  
 -(CH<sub>2</sub>)<sub>3</sub>NHCOCH<sub>3</sub>, -(CH<sub>2</sub>)<sub>3</sub>NHCOOC<sub>7</sub>H<sub>15</sub>, -CH<sub>2</sub>CH<sub>2</sub>CN, -CH<sub>2</sub>CH<sub>2</sub>OCOC<sub>3</sub>H<sub>7</sub>, -CH<sub>2</sub>CH<sub>2</sub>OCOC<sub>17</sub>H<sub>35</sub>, -CH<sub>2</sub>CH(CH<sub>3</sub>)OCOCH<sub>3</sub>,  
 -CH<sub>2</sub>CH(OCOCH<sub>3</sub>)CH<sub>2</sub>OC<sub>8</sub>H<sub>17</sub> or -CH<sub>2</sub>CH(OCOC<sub>7</sub>H<sub>15</sub>)CH<sub>2</sub>Ophenyl.

20 As C<sub>3</sub>-C<sub>6</sub>alkenyl, R<sub>7</sub> can, for example, be allyl, methallyl or 2-butenyl. As C<sub>3</sub>-C<sub>18</sub>alkenyl, R<sub>8</sub> can additionally also be, for example, octenyl, dodecanyl or oleyl. As C<sub>2</sub>-C<sub>18</sub>alkenyl, R<sub>11</sub> and R<sub>12</sub> can additionally also be vinyl.

As C<sub>7</sub>-C<sub>11</sub>phenylalkyl which is unsubstituted or substituted by OH, Cl or CH<sub>3</sub>, R<sub>7</sub> and R<sub>8</sub> can, for example, be phenylethyl, 2-hydroxy-2-phenylethyl, 2-phenylpropyl, 3-phenylpropyl, 4-chlorobenzyl or 4-methylbenzyl, but especially benzyl.

25 As C<sub>2</sub>-C<sub>16</sub>alkylene, R<sub>7</sub> can be unbranched or branched alkylene, for example di-, tri-, tetra-, hexa-, octa-, deca- or dodeca-methylene, 2,2-dimethyl-prop-1,3-ylene or 1,2-propylene. As C<sub>4</sub>-C<sub>12</sub>alkylene, R<sub>7</sub> can, in particular, be 2-buten-1,4-ylene. As C<sub>3</sub>-C<sub>20</sub>alkylene which is interrupted by O and/or substituted by OH, R<sub>7</sub> can, for example, be one of the groups -CH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>- or -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-(CH<sub>2</sub>)<sub>x</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>- in which x = 2 - 10.

30 As C<sub>3</sub>-C<sub>20</sub>alkyl which is interrupted and/or substituted by OH, R<sub>8</sub> can, in particular, be alkyl which is substituted by OH or alkyl which is interrupted by O and substituted by OH. Examples of these are the groups -CH<sub>2</sub>CH<sub>2</sub>OH, -CH<sub>2</sub>CH(OH)CH<sub>3</sub>, -CH<sub>2</sub>CH(OH)C<sub>6</sub>H<sub>13</sub>, -CH<sub>2</sub>CH<sub>2</sub>OC<sub>4</sub>H<sub>9</sub>, -CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>OH or -CH<sub>2</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>p</sub>OH in which p = 2 - 9.

As C<sub>1</sub>-C<sub>4</sub>alkyl which is substituted by -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) or -OCOR<sub>11</sub>, R<sub>8</sub> can, for example, be -CH<sub>2</sub>CH<sub>2</sub>P(O)(OC<sub>2</sub>H<sub>5</sub>)<sub>2</sub>, -CH<sub>2</sub>P(O)(OC<sub>6</sub>H<sub>13</sub>)<sub>2</sub>, -CH<sub>2</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>N(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>, -CH<sub>2</sub>CH<sub>2</sub>OCOC<sub>7</sub>H<sub>15</sub> or -CH<sub>2</sub>CH<sub>2</sub>OCOCH = CH<sub>2</sub>.

35 As C<sub>3</sub>-C<sub>12</sub>alkoxyalkyl, R<sub>9</sub> and R<sub>10</sub> can, in particular, be 2-(C<sub>1</sub>-C<sub>10</sub>alkoxy)-ethyl, for example 2-methoxyethyl, 2-butoxyethyl or 2-octyloxyethyl. As C<sub>4</sub>-C<sub>16</sub>dialkylaminoalkyl, R<sub>9</sub> and R<sub>10</sub> can, for example, be 2-dibutylaminoethyl, 2-diethylaminoethyl or 3-dimethylaminopropyl.

40 As C<sub>5</sub>-C<sub>12</sub>cycloalkyl, R<sub>9</sub> and R<sub>10</sub> can, for example, be cyclopentyl, cyclooctyl or cyclododecyl, but especially cyclohexyl. If R<sub>9</sub> and R<sub>10</sub> together are C<sub>3</sub>-C<sub>9</sub>alkylene, C<sub>3</sub>-C<sub>9</sub>oxaalkylene or C<sub>3</sub>-C<sub>9</sub>azaalkylene, they form, together with the N atom to which they are attached, a heterocyclic ring, for example a pyrrolidine, piperidine, 2,6-dimethylpiperidine, morpholine, dimethylmorpholine or piperazine ring.

As C<sub>1</sub>-C<sub>12</sub>alkoxy, R<sub>12</sub> can, for example, be methoxy, ethoxy, butoxy, hexyloxy, octyloxy, decyloxy or dodecyloxy.

As C<sub>1</sub>-C<sub>12</sub>alkylamino or C<sub>6</sub>-C<sub>12</sub>aryl amino, R<sub>12</sub> can, for example, be hexylamino, dodecylamino, phenylamino, naphthylamino or biphenylamino.

45 As C<sub>2</sub>-C<sub>10</sub>alkylene, R<sub>16</sub>, R<sub>17</sub> and R<sub>18</sub> can be unbranched or branched alkylene, for example 1,2-ethylene, tri-, tetra-, penta-, hexa-, octa- or deca-methylene, 1,2-propylene or 2,2-dimethyltrimethylene, while as oxaalkylene or thi-alkylene, R<sub>16</sub> can, for example, be 2-oxatrimethylene, 3-oxapentamethylene, 3-thiapentamethylene or 2-thiatrimethylene. As C<sub>2</sub>-C<sub>6</sub>alkenylene, R<sub>16</sub> can, in particular, be -CH = CH<sub>2</sub>.

50 As C<sub>6</sub>-C<sub>12</sub>arylene, R<sub>16</sub> and R<sub>17</sub> can, for example, be phenylene, naphthylene or biphenylene. As C<sub>7</sub>-C<sub>15</sub>alkylarylene, R<sub>17</sub> can, in particular, be tolylene.

As C<sub>4</sub>-C<sub>20</sub>alkylene which is interrupted by O, R<sub>18</sub> can be interrupted by 1 - 9 O atoms and can, in particular, be the divalent radical formed by removing the two hydroxyl groups from a polyethylene glycol or polypropylene glycol.

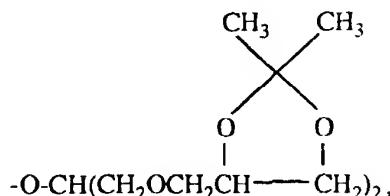
In the substituents, aryl on its own or in combined radicals is preferably phenyl, naphthyl or biphenyl.

55 Compounds of the formula I which are preferred as the component (b) are those in which n is 1 to 4, R<sub>1</sub> and R<sub>2</sub> independently of one another are H, OH or C<sub>1</sub>-C<sub>4</sub>alkyl, R<sub>3</sub> and R<sub>4</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>alkoxy, halogen or a radical -OR<sub>7</sub>, R<sub>5</sub> and R<sub>6</sub> independently of one another are H or C<sub>1</sub>-C<sub>4</sub>alkyl,

R<sub>7</sub>, if n is 1, is

a)  $C_1$ - $C_{18}$ alkyl which is substituted by one or more of the groups OH,  $C_1$ - $C_{18}$ alkoxy, allyloxy, phenoxy, furyloxy,

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-COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) and/or by -OCOR<sub>11</sub>,

b)  $C_4$ - $C_{50}$ alkyl which is interrupted by one or more O and can be substituted by OH or/and glycidyloxy,

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c) allyl, glycidyl or benzyl,

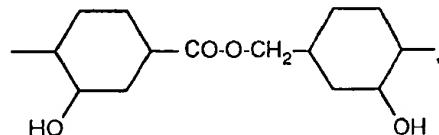
d) cyclohexyl or hydroxycyclohexyl,

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and if n is 2, R<sub>7</sub> is  $C_4$ - $C_{12}$ alkylene,  $C_4$ - $C_6$ alkenylene, xylylene,  $C_3$ - $C_{20}$ alkylene which is interrupted by one or more O and/or substituted by OH, or R<sub>7</sub> is a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOC-CH<sub>2</sub>-or

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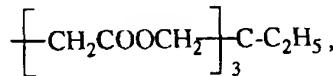
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and if n is 3, R<sub>7</sub> is a group

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and if n is 4, R<sub>7</sub> is a group

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R<sub>8</sub> is  $C_1$ - $C_{12}$ alkyl,  $C_3$ - $C_{18}$ alkenyl,  $C_3$ - $C_{20}$ alkyl which is interrupted by one or more O and/or substituted by OH or R<sub>8</sub> is  $C_1$ - $C_4$ alkyl which is substituted by -P(O)(OR<sub>14</sub>)<sub>2</sub>,

R<sub>9</sub> and R<sub>10</sub> are  $C_1$ - $C_6$ alkyl or R<sub>9</sub> and R<sub>10</sub> together are pentamethylene or 3-oxapentamethylene,

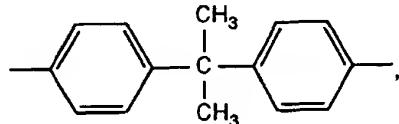
R<sub>11</sub> is  $C_1$ - $C_{12}$ alkyl,  $C_2$ - $C_5$ alkenyl or phenyl,

R<sub>14</sub> is  $C_1$ - $C_{12}$ alkyl,

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R<sub>15</sub> is  $C_2$ - $C_6$ alkylene,  $C_4$ - $C_{50}$ alkylene which is interrupted by one or more O, or is a group

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$R_{16}$  is  $C_2$ - $C_8$ alkylene,  $C_2$ - $C_6$ oxaalkylene or  $C_2$ - $C_6$ thiaalkylene and  $R_{18}$  is  $C_4$ - $C_8$ alkylene or  $C_4$ - $C_{12}$ alkylene which is interrupted by one or more O.

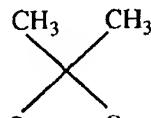
5  $R_1$  and  $R_2$  are preferably hydrogen, chlorine or  $C_1$ - $C_4$ alkyl, particularly hydrogen or methyl.  $R_3$  and  $R_4$  are preferably hydrogen, chlorine or  $C_1$ - $C_4$ alkyl, particularly hydrogen, chlorine or methyl.  $R_5$  and  $R_6$  are preferably hydrogen.

Compounds of the formula I which are particularly preferred as component (b) are those in which n is 1, 2 or 4,  $R_1$  and  $R_2$  independently of one another are H or  $CH_3$ ,  $R_3$  and  $R_4$  independently of one another are H,  $CH_3$  or Cl,  $R_5$  and  $R_6$  are hydrogen,

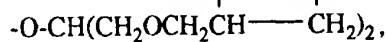
10  $R_7$ , if n is 1, is

a)  $C_1$ - $C_{14}$ alkyl which is substituted by one or more of the groups OH,  $C_1$ - $C_{15}$ alkoxy, allyloxy, phenoxy, furyloxy,

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- $COOR_8$ , - $CON(R_9)(R_{10})$  and/or by - $OCOR_{11}$ ,

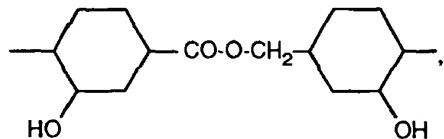
b)  $C_6$ - $C_{45}$ alkyl which is interrupted by one or more O and can be substituted by OH or/and glycidyloxy,  
c) glycidyl or

d) hydroxycyclohexyl,

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and if n is 2,  $R_7$  is  $C_6$ - $C_{12}$ alkylene, 2-butenylene-1,4, xylylene,  $C_3$ - $C_{20}$ alkylene which is interrupted by one or more O or substituted by OH, or  $R_7$  is a group - $CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ , - $CO-R_{16}-CO-$ , - $CH_2-COO-$   $R_{18}-OOC-CH_2-$  or

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and if n is 4,  $R_7$  is

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$R_8$  is  $C_4$ - $C_{10}$ alkyl, oleyl,  $C_3$ - $C_{20}$ alkyl which is interrupted by one or more O and/or substituted by OH, or  $R_8$  is - $CH_2P$   $(O)(OR_{14})_2$ ,

$R_9$  and  $R_{10}$  are  $C_2$ - $C_6$ alkyl

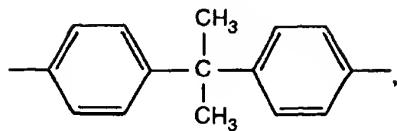
$R_{11}$  is  $C_6$ - $C_{10}$ alkyl,  $C_2$ - $C_3$ alkenyl

$R_{14}$  is  $C_1$ - $C_{12}$ alkyl,

$R_{15}$  is  $C_2$ - $C_8$ alkylene,  $C_{10}$ - $C_{45}$ alkylene which is interrupted by more than one O, or is a group

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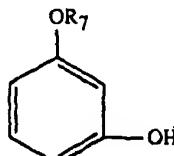
R<sub>16</sub> is C<sub>4</sub>-C<sub>8</sub>alkylene and R<sub>18</sub> is C<sub>4</sub>-C<sub>8</sub>alkylene.

10 A further preferred group of compounds of the formula I is formed by those in which n is 1 or 2 and, if n is 1, R<sub>7</sub> is a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub> in which R<sub>21</sub> is C<sub>1</sub>-C<sub>18</sub>alkyl, allyl, phenyl, furyl, C<sub>6</sub>-C<sub>12</sub>-alkanoyl or C<sub>3</sub>-C<sub>5</sub>alkenoyl and, if n is 2, R<sub>7</sub> is a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>- in which R<sub>15</sub> is as defined above.

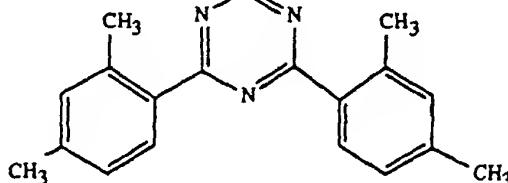
The following compounds are examples of individual compounds of the formula I

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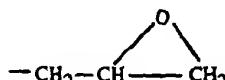
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R<sub>7</sub> = CH<sub>2</sub> phenyl  
 -CH<sub>2</sub>CH<sub>2</sub>OH  
 -CH<sub>2</sub>CH<sub>2</sub>OCOCH<sub>3</sub>  
 -CH<sub>2</sub>CH<sub>2</sub>OCOCH=CH<sub>2</sub>  
 -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OCH<sub>17</sub>  
 -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O(CH<sub>2</sub>)<sub>12-14</sub>CH<sub>3</sub>  
 -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O phenyl  
 -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OOC(CH<sub>3</sub>)=CH<sub>2</sub>

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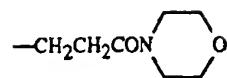
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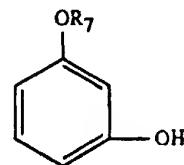
-CH<sub>2</sub>COOH  
 -CH<sub>2</sub>CH<sub>2</sub>COOC<sub>4</sub>H<sub>9</sub>  
 -CH<sub>2</sub>COOC<sub>8</sub>H<sub>17</sub>  
 -CH<sub>2</sub>COO(CH<sub>2</sub>CH<sub>2</sub>O)<sub>7</sub>H  
 -CH<sub>2</sub>COOCH<sub>2</sub>CH(OH)CH<sub>2</sub>OCOCH=CH<sub>2</sub>  
 -CH<sub>2</sub>COOCH<sub>2</sub>CH(CH<sub>3</sub>)OCH<sub>2</sub>CH(CH<sub>3</sub>)OCH(CH<sub>3</sub>)CH<sub>3</sub>  
 -CH<sub>2</sub>COOCH<sub>2</sub>P(O)(OC<sub>2</sub>H<sub>5</sub>)<sub>2</sub>  
 -CH<sub>2</sub>COOCH<sub>2</sub>CH(OH)CH<sub>2</sub>P(O)(OC<sub>4</sub>H<sub>9</sub>)<sub>2</sub>  
 -CH<sub>2</sub>COO(CH<sub>2</sub>)<sub>7</sub>CH=CHC<sub>8</sub>H<sub>17</sub>  
 -CH<sub>2</sub>COOCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>OC<sub>6</sub>H<sub>13</sub>  
 -CH<sub>2</sub>CON(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>



-CH<sub>2</sub>CONHCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>  
 -CH<sub>2</sub>CONHC<sub>8</sub>H<sub>17</sub>  
 -CH<sub>2</sub>CON(C<sub>8</sub>H<sub>17</sub>)<sub>2</sub>

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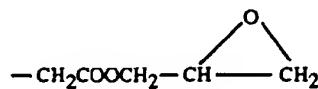
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R<sub>7</sub> =  
 -CH<sub>2</sub>COOC<sub>2</sub>H<sub>5</sub>  
 -CH<sub>2</sub>COOCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>  
 -CH<sub>2</sub>COOCH<sub>2</sub>CH=CH-phenyl  
 -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O(CH<sub>2</sub>)<sub>12-14</sub>CH<sub>3</sub>

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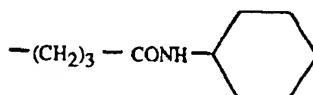


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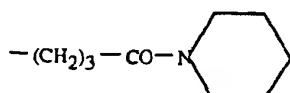
-CH<sub>2</sub>COOCH<sub>2</sub>CH(OH)CH<sub>2</sub>OCH<sub>3</sub>  
 -CH<sub>2</sub>phenyl  
 -CH<sub>2</sub>CH=CH<sub>2</sub>  
 -CH<sub>2</sub>CON(C<sub>4</sub>H<sub>9</sub>)<sub>2</sub>  
 -CH<sub>2</sub>CH<sub>2</sub>CONHC<sub>8</sub>H<sub>17</sub>

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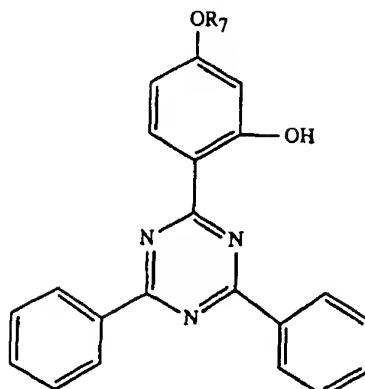
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-CO-OC<sub>6</sub>H<sub>13</sub>  
 -CH<sub>2</sub>CH<sub>2</sub>Cl  
 -CH<sub>2</sub>CH<sub>2</sub>CN

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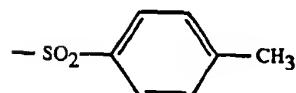


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R<sub>7</sub> =  
 -CH<sub>2</sub>CH(OH)phenyl  
 -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O(CH<sub>2</sub>)<sub>12-14</sub>CH<sub>3</sub>  
 -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OCOPhenyl  
 -CH<sub>2</sub>CH(CH<sub>3</sub>)OCOCH<sub>3</sub>  
 -SO<sub>2</sub>-C<sub>12</sub>H<sub>15</sub>

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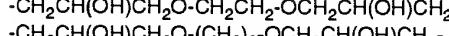
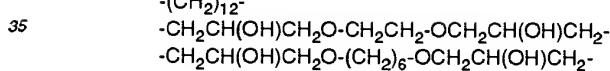
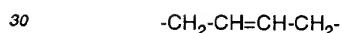
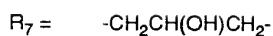
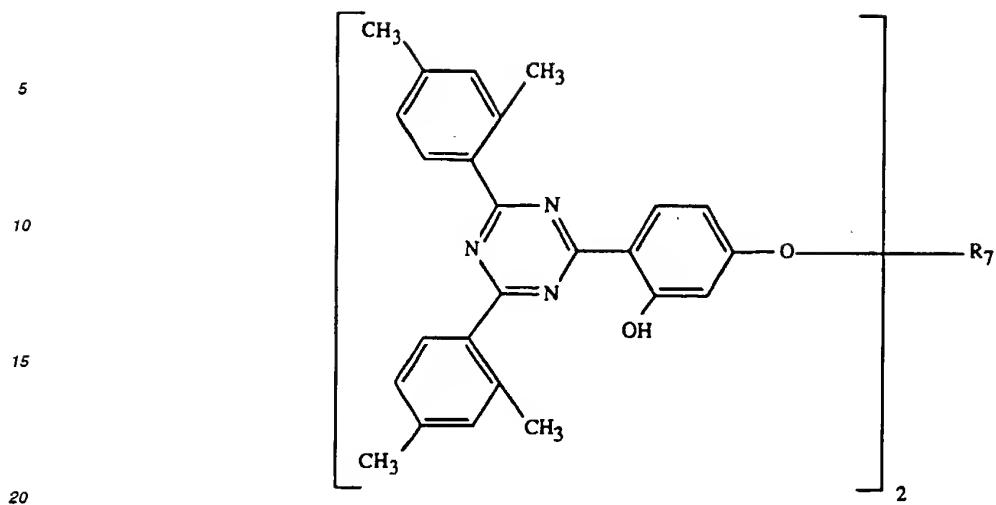
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-CH<sub>2</sub>COOC<sub>10</sub>H<sub>21</sub>  
 -CH<sub>2</sub>CONHCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>  
 -CH<sub>2</sub>CH<sub>2</sub>CONHCH<sub>2</sub>phenyl  
 -(CH<sub>2</sub>)<sub>3</sub>CONH(CH<sub>2</sub>)<sub>3</sub>N(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>  
 -CH<sub>2</sub>CONHC<sub>12</sub>H<sub>25</sub>

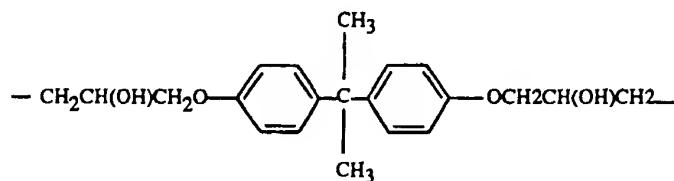
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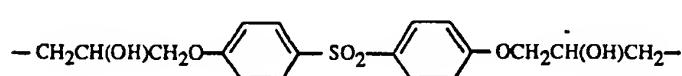


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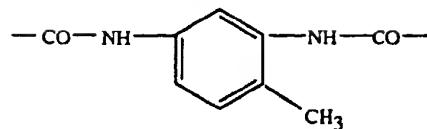
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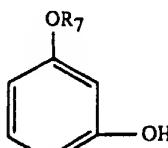




-CO-(CH<sub>2</sub>)<sub>8</sub>-CO

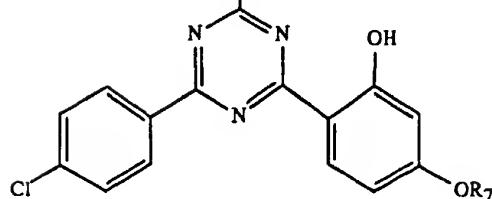
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30      R<sub>7</sub> =      -CH<sub>2</sub>CH(OH)CH<sub>3</sub>  
           -CH<sub>2</sub>CH<sub>2</sub>OC<sub>4</sub>H<sub>9</sub>

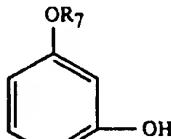
-CH<sub>2</sub>CH<sub>2</sub>COC<sub>2</sub>H<sub>5</sub>

-CH<sub>2</sub>COOC<sub>6</sub>H<sub>13</sub>

-CH<sub>2</sub>CH(OH)CH<sub>2</sub>OC<sub>4</sub>H<sub>9</sub>

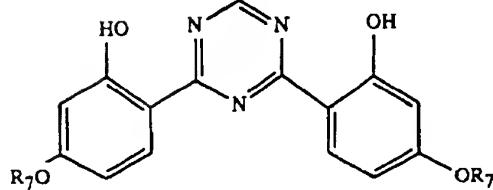
35      -CH<sub>2</sub>CH(OH)CH<sub>2</sub>Ophenyl

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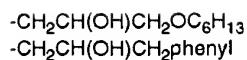


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55      R<sub>7</sub> =      -CH<sub>2</sub>CH<sub>2</sub>OH  
           -CH<sub>2</sub>CH<sub>2</sub>Ophenyl  
           -CH<sub>2</sub>COOC<sub>6</sub>H<sub>13</sub>  
           -CH<sub>2</sub>CH<sub>2</sub>COO(CH<sub>2</sub>CH<sub>2</sub>O)<sub>3</sub>H



5 Some of the triazine derivatives of the formula I are known compounds. Many such compounds and also their preparation and their use as UV absorbers for organic materials are described in US Patents 3,244,708, 3,249,608 and 3,423,360. Their use in photographic materials is described in US Patent 3,843,371.

Another fraction of the triazine derivatives constitutes novel compounds. Compounds which are novel and are also a subject of the present invention are those of the formula Ia

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in which

n is 1 to 4,

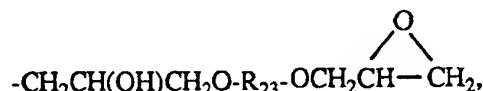
R<sub>1</sub> and R<sub>2</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl or trifluoromethyl,R<sub>3</sub> and R<sub>4</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen and, in the event that n = 1, can also be a radical -OR<sub>7</sub>,R<sub>5</sub> and R<sub>6</sub> independently of one another are H, C<sub>1</sub>-C<sub>12</sub>alkyl or halogen,R<sub>7</sub>, if n is 1, is

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a) C<sub>1</sub>-C<sub>12</sub>alkyl which is substituted by phenoxy (which is unsubstituted or substituted by C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen) or by a group-COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) or -O-CO-R<sub>22</sub>,b) C<sub>4</sub>-C<sub>50</sub>alkyl which is interrupted by more than one O and can be substituted by OH or/and glycidyloxy, be substituted by OH or/and glycidyloxy,

c) glycidyl or a group

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d) cyclohexyl substituted by OH or -OCOR<sub>11</sub>e) a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub>f) a group -SO<sub>2</sub>-R<sub>13</sub>,g) a group -CO-R<sub>12</sub>,

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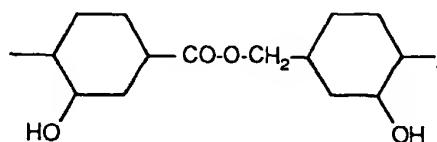
and if n is 2,

R<sub>7</sub> is

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- a)  $C_2$ - $C_{12}$ alkylene,
- b)  $C_4$ - $C_{12}$ alkenylene,
- c) xylylene,
- d)  $C_3$ - $C_{20}$ alkylene which is interrupted by one or more O and/or substituted by OH,
- e) a group  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ ,  
 $-(CH_2)_m-COO-R_{18}-OOC-(CH_2)_m-$  (wherein m is 1-3) or

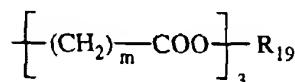
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and if n is 3,  
 R<sub>7</sub> is a group

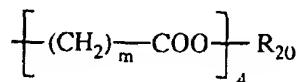
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(wherein m is 1-3), and if n is 4, R<sub>7</sub> is a group

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(wherein m is 1-3),

R<sub>8</sub> is  $C_3$ - $C_{20}$ alkyl which is interrupted by one or more O, N or S and can be substituted by OH, or R<sub>8</sub> is  $C_1$ - $C_4$ alkyl which is substituted by  $-P(O)(OR_{14})_2$ ,  $-N(R_9)(R_{10})$ , or  $-OCOR_{11}$ , or R<sub>8</sub> is  $C_3$ - $C_{18}$ alkenyl, glycidyl or  $C_7$ - $C_{11}$ phenylalkyl,

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R<sub>9</sub> and R<sub>10</sub> independently are  $C_1$ - $C_{12}$ alkyl,  $C_3$ - $C_{12}$ alkoxyalkyl,  $C_4$ - $C_{16}$ dialkylaminoalkyl or  $C_5$ - $C_{12}$ cycloalkyl, or R<sub>9</sub> and R<sub>10</sub> together are  $C_3$ - $C_9$ alkylene or  $C_3$ - $C_9$ oxaalkylene or  $C_3$ - $C_9$ azaalkylene,

R<sub>11</sub> is  $C_1$ - $C_{18}$ alkyl,  $C_2$ - $C_{18}$ alkenyl or phenyl,

R<sub>12</sub> is a group  $-R_{24}-COOH$  or  $-NH-R_{17}-NCO$ ,

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R<sub>13</sub> is  $C_1$ - $C_{12}$ alkyl,  $C_6$ - $C_{12}$ aryl or  $C_7$ - $C_{14}$ alkaryl

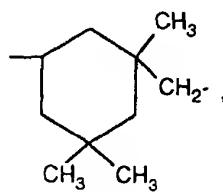
R<sub>14</sub> is  $C_1$ - $C_{12}$ alkyl or phenyl

R<sub>15</sub> is  $C_2$ - $C_{10}$ alkylene,  $C_4$ - $C_{50}$ alkylene which is interrupted by one or more O, or R<sub>15</sub> is phenylene or a group  $-phenylene-X-phenylene-$  in which X is  $-O-$ ,  $-S-$ ,  $-SO_2-$ ,  $-CH_2-$  or  $-C(CH_3)_2-$ ,

R<sub>17</sub> is  $C_2$ - $C_{10}$ alkylene, phenylene, tolylene, diphenylenemethane or a group

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R<sub>18</sub> is  $C_2$ - $C_{10}$ alkylene or  $C_4$ - $C_{20}$ alkylene which is interrupted by one or more O,

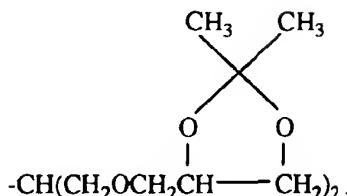
R<sub>19</sub> is  $C_3$ - $C_{12}$ alkanetriyl,

R<sub>20</sub> is  $C_4$ - $C_{12}$ alkanetetriyl,

R<sub>21</sub> is  $C_1$ - $C_{18}$ alkyl,  $C_3$ - $C_{18}$ alkenyl, phenyl, phenyl substituted by  $C_1$ - $C_{12}$ alkyl,  $C_1$ - $C_{12}$ alkoxy or halogen, or R<sub>21</sub>

is  $C_2$ - $C_{19}$  alkanoyl, benzoyl,  $C_3$ - $C_{18}$  alkenoyl, furyl or a group

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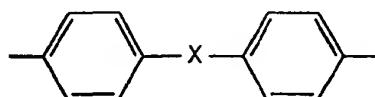
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$R_{22}$  is  $C_2$ - $C_5$  alkenyl,  
 $R_{23}$  is  $C_2$ - $C_{10}$  alkylene, phenylene or a group

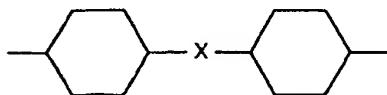
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or

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wherein X is O, S,  $SO_2$ ,  $CH_2$  or  $C(CH_3)_2$ , and  
 $R_{24}$  is  $C_2$ - $C_{14}$  alkylene, vinylene or o-phenylene.

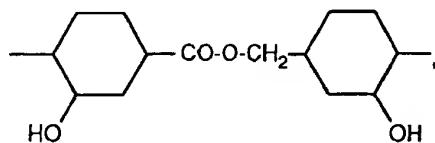
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Amongst these compounds of the formula Ia, preferred compounds are those in which n is 1 to 4,  $R_1$  and  $R_2$  independently of one another are H, OH or  $C_1$ - $C_4$  alkyl,  $R_3$  and  $R_4$  independently of one another are H, OH,  $C_1$ - $C_4$  alkyl,  $C_1$ - $C_4$  alkoxy, halogen or a radical  $-OR_7$ ,  $R_5$  and  $R_6$  independently of one another are H or  $C_1$ - $C_4$  alkyl,

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$R_7$ , if n is 1, is  $C_1$ - $C_6$  alkyl which is substituted by  $-COOR_8$ ,  $-COONHR_9$ ,  $-CON(R_9)(R_{10})$  or  $-OCOR_{22}$ , or  $R_7$  is glycidyl, hydroxycyclohexyl or a group  $-CH_2CH(OH)CH_2OR_{21}$ , and if n is 2,  $R_7$  is  $C_4$ - $C_{12}$  alkylene,  $C_4$ - $C_6$  alkenylene, xylylene,  $C_3$ - $C_{20}$  alkylene which is interrupted by one or more O and/or substituted by OH, or  $R_7$  is a group  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ ,  $-CH_2-COO-R_{16}-OOCCH_2-$  or

45



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and if n is 3,  $R_7$  is a group

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and if n is 4,  $R_7$  is a group



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$R_8$  is  $C_3\text{-}C_{20}$ alkyl which is interrupted by one or more O and can be substituted by OH or  
 $R_8$  is  $C_1\text{-}C_4$ alkyl which is substituted by  $-\text{P}(\text{O})(\text{OR}_{14})_2$  or  $R_8$  is  $C_3\text{-}C_{18}$ alkenyl,  
 $R_9$  and  $R_{10}$  independently are  $C_1\text{-}C_8$ alkyl or cyclohexyl or  $R_9$  and  $R_{10}$  together are pentamethylene or 3-oxapentamethylene,

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$R_{14}$  is  $C_1\text{-}C_{14}$ alkyl,  
 $R_{15}$  is  $C_2\text{-}C_8$ alkylene,  $C_4\text{-}C_{50}$ alkylene which is interrupted by one or more O, or  $R_{15}$  is a group -phenylene-X-phenylene- in which X is  $-\text{O}-$ ,  $-\text{CH}_2-$  or  $-\text{C}(\text{CH}_3)_2-$ ,

$R_{18}$  is  $C_4\text{-}C_8$ alkylene or  $C_4\text{-}C_{12}$ alkylene which is interrupted by one or more O,

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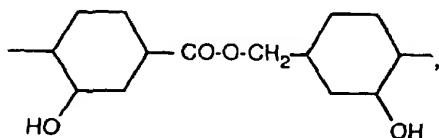
$R_{21}$  is  $C_4\text{-}C_{18}$ alkyl, allyl, phenyl, furyl,  $C_5\text{-}C_{19}$ alkanoyl or  $C_3\text{-}C_5$ alkenoyl and  $R_{22}$  is  $C_2\text{-}C_5$ alkenyl, in particular those in which n is 1, 2 or 4,  $R_1$  and  $R_2$  independently of one another are H or  $\text{CH}_3$ ,  $R_3$  and  $R_4$  independently of one another are H,  $\text{CH}_3$  or Cl,  $R_5$  and  $R_6$  are hydrogen,

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$R_7$ , if n is 1, is  $C_1\text{-}C_4$ alkyl which is substituted by  $-\text{COOR}_8$ ,  $-\text{CON}(\text{R}_9)(\text{R}_{10})$  or  $-\text{O}-\text{COR}_{22}$ , or  $R_7$  is glycidyl, 2-hydroxycyclohexyl or a group  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OR}_{21}$ , and if n is 2,  $R_7$  is  $C_6\text{-}C_{12}$ alkenylene, 2-butene-1,4-ylene, xylylene or  $C_3\text{-}C_{20}$ alkylene which is interrupted by one or more O and/or substituted by OH, or  $R_7$  is a group  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-R_{15}-\text{OCH}_2\text{CH}(\text{OH})\text{CH}_2-$ ,  $-\text{CH}_2\text{COO}-R_{18}-\text{OOCCH}_2-$  or

$\text{OOCCH}_2-$

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and if n is 4,  $R_7$  is a group

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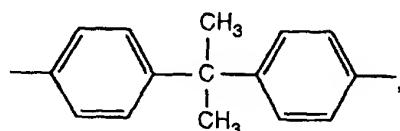
$R_8$  is  $C_3\text{-}C_{20}$ alkyl which is interrupted by one or more O and can be substituted by OH or  $R_8$  is  $-\text{CH}_2\text{P}(\text{O})(\text{OR}_{14})_2$  or oleyl

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$R_9$  and  $R_{10}$  are  $C_2\text{-}C_6$ alkyl

$R_{15}$  is  $C_2\text{-}C_8$ alkylene,  $C_{10}\text{-}C_{45}$ alkylene which is interrupted by one or more O or is a group

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$R_{18}$  is  $C_4\text{-}C_8$ alkylene,

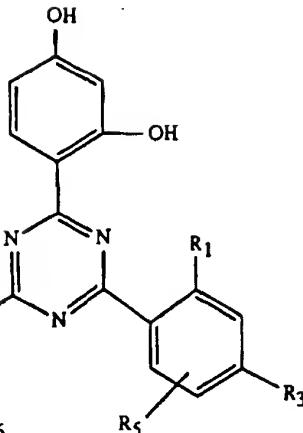
$R_{21}$  is  $C_4\text{-}C_{15}$ alkyl, allyl, phenyl, furyl,  $C_5\text{-}C_{12}$ alkanoyl or  $C_3\text{-}C_5$ alkenoyl and  $R_{22}$  is  $C_2\text{-}C_3$ alkenyl.

The compounds of the formula Ia in which n is 2 are also preferred.

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In general, the compounds of the formula I and Ia can be prepared by introducing the radical  $R_7$  into the p-hydroxyl group in a compound of the formula II

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II.

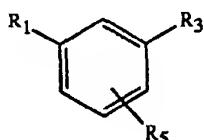
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The compounds of the formula II are known compounds and can be prepared by a Friedel-Crafts reaction between cyanuric chloride and 1 mole of an aromatic compound of the formula

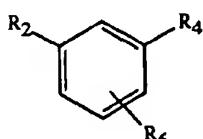
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and 1 mole of an aromatic compound of the formula

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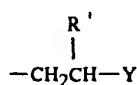
and 1 mole of resorcinol, as described, for example, in Swiss Patent 480,091 or in Swiss Patent 484,695 or in US Patent 3,244,708.

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The conversion of II into I can be effected by various processes known per se, depending on the nature of the radical R<sub>7</sub>. If R<sub>7</sub> is substituted alkyl, alkenyl, glycidyl, phenylalkyl, -CO-R<sub>12</sub>, -SO<sub>2</sub>-R<sub>13</sub>, alkylene, alkenylene, xylylene or -COR<sub>16</sub>CO-, the compound II or an alkali metal salt thereof can be reacted with a halogen compound of the formula Hal-R<sub>7</sub> or Hal-R<sub>7</sub>-Hal in which Hal is chlorine, bromine or iodine, in particular with the compounds Cl-R<sub>7</sub> and Cl-R<sub>7</sub>-Cl.

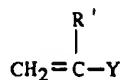
If R<sub>7</sub> is a group

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in which R' is hydrogen or CH<sub>3</sub> and Y is -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) or -CN, the compounds can be prepared by reacting a compound of the formula II with a compound of the formula

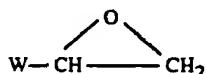


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in the manner of a so-called Michael addition reaction.

If  $\text{R}_7$  is a group  $-\text{CH}_2\text{CH}(\text{OH})-\text{W}$  in which  $\text{W}$  is alkyl, phenyl, phenylalkyl or  $-\text{CH}_2\text{OR}_{21}$ , such compounds can be prepared by reacting a compound of the formula II with an epoxide of the formula

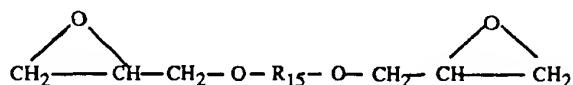
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Analogously, compounds of the formula I in which  $n$  is 2 and  $\text{R}_7$  is a group  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-\text{R}_{15}-\text{OCH}_2\text{CH}(\text{OH})\text{CH}_2-$ , can be prepared by reacting 2 moles of a compound II and 1 mole of a bis-glycidyl ether of the formula

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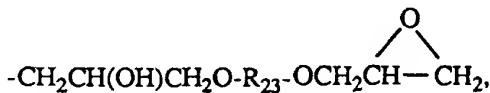
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Compounds of the formula I in which  $\text{R}_7$  is cyclohexyl substituted by OH can be prepared by reaction of II with cyclohexene oxide.

Compounds of the formula I in which  $n$  is 2 and  $\text{R}_7$  is  $-\text{CO}-\text{NH}-\text{R}_{17}-\text{NH}-\text{CO}-$  can be prepared by reacting 2 moles of a compound of the formula II with 1 mole of a diisocyanate  $\text{OCN}-\text{R}_{17}-\text{NCO}$ . Compounds of the formula I in which  $n$  is 2 and  $\text{R}_7$  is a group  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2-$  can be prepared by reacting 2 moles of a compound II with 1 mole of epichlorohydrin.

Compounds of formula I or Ia wherein  $n$  is 1 and  $\text{R}_7$  is a group

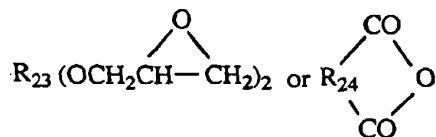
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or a group  $-\text{CO}-\text{R}_{24}-\text{COOH}$  or  $-\text{CONH}-\text{R}_{17}-\text{NCO}$  can be prepared from II by reaction with one molar equivalent of a compound

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or  $\text{OCN}-\text{R}_{17}-\text{NCO}$  respectively.

It is also possible to convert a compound of the formula I into another compound of the formula I. For example, a hydroxyalkyl or aminoalkyl radical  $\text{R}_7$  can be converted by acylation with  $\text{R}_{11}\text{COCl}$  into the corresponding acyloxy or acylamino derivative.

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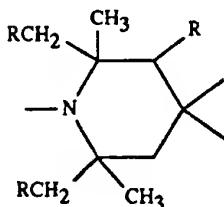
Or a cyanoalkyl radical  $\text{R}_7$  can be converted by reduction into an aminoalkyl radical. Compounds in which  $\text{R}_7$  is alkyl which is substituted by  $-\text{COOR}_8$  can be transesterified with another alcohol or polyol.

The methods required for the individual stages of the synthesis are known to those skilled in the art; some of them are described in greater detail in the examples which follow later.

The polyalkylpiperidines used as the component (a) preferably contain at least one group of the formula

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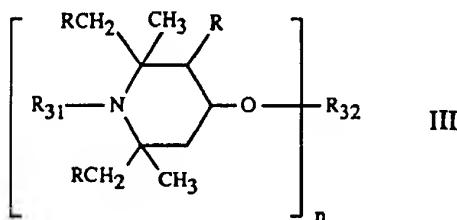
15 in which R is hydrogen or methyl. R is preferably hydrogen. These are derivatives of polyalkylpiperidines, in particular of 2,2,6,6-tetramethylpiperidine. These compounds preferably carry one or two polar substituents or a polar spiro ring system in the 4-position of the piperidine ring. These compounds can be low-molecular or oligomeric or polymeric compounds.

The following classes of polyalkylpiperidines are of particular importance.

20 a) Compounds of the formula III

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35 in which n is a number from 1 to 4, R is hydrogen or methyl, R<sub>31</sub> is hydrogen, amine oxide, hydroxyl, C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>3</sub>-C<sub>8</sub>alkenyl, C<sub>3</sub>-C<sub>8</sub>alkinyl, C<sub>7</sub>-C<sub>12</sub>aralkyl, C<sub>1</sub>-C<sub>18</sub>alkoxy, C<sub>5</sub>-C<sub>8</sub>cycloalkoxy, C<sub>7</sub>-C<sub>9</sub>phenylalkoxy, C<sub>1</sub>-C<sub>8</sub>alkanoyl, C<sub>3</sub>-C<sub>5</sub>alkenoyl, C<sub>1</sub>-C<sub>18</sub>alkanoyloxy, benzyloxy, glycidyl or a group -CH<sub>2</sub>CH(OH)-Z, in which Z is hydrogen, methyl or phenyl, R<sub>31</sub> being preferably H, C<sub>1</sub>-C<sub>4</sub>alkyl, allyl, benzyl, acetyl or acryloyl, and, if n is 1, R<sub>32</sub> is hydrogen, C<sub>1</sub>-C<sub>18</sub>alkyl which can be interrupted by one or more oxygen atoms, cyanoethyl, benzyl, glycidyl, a monovalent radical of an aliphatic, cycloaliphatic, araliphatic, unsaturated or aromatic carboxylic acid, carbamic acid or an acid containing phosphorus or a monovalent silyl radical, preferably a radical of an aliphatic carboxylic acid having 2 to 18 C atoms, a cycloaliphatic carboxylic acid having 7 to 15 C atoms, an α,β-unsaturated carboxylic acid having 3 to 5 C atoms or an aromatic carboxylic acid having 7 to 15 C atoms, or, if n is 2, is C<sub>1</sub>-C<sub>12</sub>alkylene, C<sub>4</sub>-C<sub>12</sub>alkenylene, xylylene, a divalent radical of an aliphatic, cycloaliphatic, araliphatic or aromatic dicarboxylic acid, dicarbamic acid, or acid containing phosphorus, or a divalent silyl radical, preferably a radical of an aliphatic dicarboxylic acid having 2 to 36 C atoms, a cycloaliphatic or aromatic dicarboxylic acid having 8-14 C atoms or an aliphatic, cycloaliphatic or aromatic dicarbamic acid having 8-14 C atoms, or, if n is 3, is a trivalent radical of an aliphatic, cycloaliphatic or aromatic tricarboxylic acid, an aromatic tricarbamic acid or an acid containing phosphorus, or a trivalent silyl radical, and, if n is 4, is a tetravalent radical of an aliphatic, cycloaliphatic or aromatic tetracarboxylic acid.

40 Examples of possible C<sub>1</sub>-C<sub>12</sub>alkyl substituents are methyl, ethyl, n-propyl, n-butyl, sec-butyl, tert-butyl, n-hexyl, n-octyl, 2-ethylhexyl, n-nonyl, n-decyl, n-undecyl or n-dodecyl.

45 As C<sub>1</sub>-C<sub>18</sub>alkyl, R<sub>31</sub> or R<sub>32</sub> can be the groups defined above and additionally, for example, n-tridecyl, n-tetradecyl, n-hexadecyl or n-octadecyl.

50 As C<sub>3</sub>-C<sub>8</sub>alkenyl, R<sub>31</sub> can, for example, be 1-propenyl, allyl, methallyl, 2-but enyl, 2-pentenyl, 2-hexenyl, 2-octenyl, 4-tert-butyl-2-but enyl.

55 As C<sub>3</sub>-C<sub>8</sub>alkinyl, R<sub>31</sub> is preferably propargyl.

As C<sub>7</sub>-C<sub>12</sub>aralkyl, R<sub>31</sub> is especially phenethyl and, in particular, benzyl.

55 Examples of R<sub>31</sub> as C<sub>1</sub>-C<sub>8</sub>alkanoyl are formyl, propionyl, butyryl or octanoyl, but preferably acetyl, and examples of R<sub>21</sub> as C<sub>3</sub>-C<sub>5</sub>alkenoyl are especially acryloyl.

Examples of  $R_{31}$  as  $C_1$ - $C_{18}$ alkoxy are hexyloxy, heptyloxy, octyloxy or decyloxy. As cycloalkoxy,  $R_{31}$  is preferably cyclohexyloxy. As phenylalkoxy,  $R_{31}$  is preferably benzylxyloxy. Examples of  $R_{31}$  as alkanoyloxy are acetoxy, butyroyloxy, hexanoyloxy, octanoyloxy, decanoyloxy or stearoyloxy.

Examples of  $R_{32}$  as a monovalent radical of a carboxylic acid are a radical of acetic acid, caproic acid, stearic acid, acrylic acid, methacrylic acid, benzoic acid or  $\beta$ -(3,5-di-tert-butyl-4-hydroxyphenyl)-propionic acid.

Examples of  $R_{32}$  as a divalent radical of a dicarboxylic acid are a radical of malonic acid, succinic acid, glutaric acid, adipic acid, suberic acid, sebacic acid, maleic acid, itaconic acid, phthalic acid, dibutylmalonic acid, dibenzylmalonic acid, butyl-(3,5-di-tert-butyl-4-hydroxybenzyl)-malonic acid or bicycloheptenedicarboxylic acid.

Examples of  $R_{32}$  as a trivalent radical of a tricarboxylic acid are a radical of trimellitic acid, citric acid or nitrilotriacetic acid.

Examples of  $R_{32}$  as a tetravalent radical of a tetracarboxylic acid are the tetravalent radical of butane-1,2,3,4-tetracarboxylic acid or pyromellitic acid.

Examples of  $R_{32}$  as a divalent radical of a dicarbamic acid are a radical of hexamethylenedicarbamic acid or 2,4-toluylenedicarbamic acid.

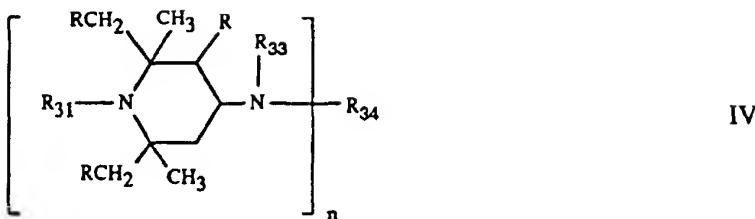
Preferred compounds of the formula III are those in which R is hydrogen,  $R_{31}$  is hydrogen or methyl, n is 1 and  $R_{32}$  is  $C_1$ - $C_{18}$ alkyl, or n is 2 and  $R_{32}$  is the diacyl radical of an aliphatic dicarboxylic acid having 4-12 C atoms.

The following compounds are examples of polyalkylpiperidine compounds of this class:

- 1) 4-Hydroxy-2,2,6,6-tetramethylpiperidine,
- 2) 1-Allyl-4-hydroxy-2,2,6,6-tetramethylpiperidine,
- 3) 1-Benzyl-4-hydroxy-2,2,6,6-tetramethylpiperidine,
- 4) 1-(4-tert-Butyl-2-butenyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine,
- 5) 4-Stearoyloxy-2,2,6,6-tetramethylpiperidine,
- 6) 1-Ethyl-4-salicyloyloxy-2,2,6,6-tetramethylpiperidine,
- 7) 4-Methacryloyloxy-1,2,2,6,6-pentamethylpiperidine,
- 8) 1,2,2,6,6-Pentamethylpiperidin-4-yl  $\beta$ -(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate,
- 9) Di-(1-benzyl-2,2,6,6-tetramethylpiperidin-4-yl) maleinate,
- 10) Di-(2,2,6,6-tetramethylpiperidin-4-yl) succinate,
- 11) Di-(2,2,6,6-tetramethylpiperidin-4-yl) glutarate,
- 12) Di-(2,2,6,6-tetramethylpiperidin-4-yl) adipate,
- 13) Di-(2,2,6,6-tematreythylpiperidin-4-yl) sebacate,
- 14) Di-(1,2,2,6,6-pentamethylpiperidin-4-yl) sebacate,
- 15) Di-(1,2,3,6-tetramethyl-2,6-diethyl-piperidin-4-yl) sebacate,
- 16) Di-(1-allyl-2,2,6,6-tetramethylpiperidin-4-yl) phthalate,
- 17) 1-Hydroxy-4- $\beta$ -cyanoethoxy-2,2,6,6-tetramethylpiperidine,
- 18) 1-Acetyl-2,2,6,6-tetramethylpiperidin-4-yl acetate,
- 19) Tri-(2,2,6,6-tetramethylpiperidin-4-yl) trimellitate,
- 20) 1-Acryloyl-4-benzyloxy-2,2,6,6-tetramethylpiperidine,
- 21) Di-(2,2,6,6-tetramethylpiperidin-4-yl) diethylmalonate,
- 22) Di-(1,2,2,6,6-pentamethylpiperidin-4-yl) dibutylmalonate,
- 23) Di-(1,2,2,6,6-pentamethylpiperidin-4-yl) butyl-(3,5-di-tert-butyl-4-hydroxybenzyl)-malonate,
- 24) Di-(1-octyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate,
- 25) Di-(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate,
- 26) Hexane-1',6'-bis-(4-carbamoyloxy-1-n-butyl-2,2,6,6-tetramethylpiperidine),
- 27) Toluene-2',4'-bis-(4-carbamoyloxy-1-n-propyl-2,2,6,6-tetramethylpiperidine),
- 28) Tetra-(2,2,6,6-tetramethylpiperidin-4-yl) butane-1,2,3,4-tetracarboxylate,
- 29) Tetra-(1,2,2,6,6-pentamethylpiperidin-4-yl) butane-1,2,3,4-tetracarboxylate,
- 30) Tris-(1-propyl-2,2,6,6-tetramethylpiperidin-4-yl) phosphite,
- 31) Tris-(1-propyl-2,2,6,6-tetramethylpiperidin-4-yl) phosphate,
- 32) Phenyl-[bis-(1,2,2,6,6-pentamethylpiperidin-4-yl)] phosphonate,
- 33) 4-Hydroxy-1,2,2,6,6-pentamethylpiperidine,
- 34) 4-Hydroxy-N-hydroxyethyl-2,2,6,6-tetramethylpiperidine,
- 35) 4-Hydroxy-N-(2-hydroxypropyl-2,2,6,6-tetramethylpiperidine,
- 36) 1-Glycidyl-4-hydroxy-2,2,6,6-tetramethylpiperidine.

## b) Compounds of the formula IV

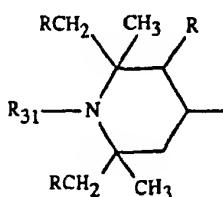
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in which n is the number 1 or 2, R and R<sub>31</sub> are as defined under a), R<sub>33</sub> is hydrogen, C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>2</sub>-C<sub>5</sub>hydroxyalkyl, C<sub>5</sub>-C<sub>7</sub>cycloalkyl, C<sub>7</sub>-C<sub>8</sub>aralkyl, C<sub>2</sub>-C<sub>18</sub>alkanoyl, C<sub>3</sub>-C<sub>5</sub>alkenoyl, benzoyl or a group of the formula

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and, if n is 1, R<sub>34</sub> is hydrogen, C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>3</sub>-C<sub>8</sub>alkenyl, C<sub>5</sub>-C<sub>7</sub>cycloalkyl, C<sub>1</sub>-C<sub>4</sub>alkyl which is substituted by a hydroxyl, cyano, alkoxycarbonyl or carbamide group, glycidyl or a group of the formula -CH<sub>2</sub>-CH(OH)-Z or the formula -CONH-Z in which Z is hydrogen, methyl or phenyl or R<sub>34</sub> is a group -CO-CO-NH-(C<sub>1</sub>-C<sub>18</sub>alkyl); or, if n is 2, R<sub>34</sub> is C<sub>2</sub>-C<sub>12</sub>alkylene, C<sub>6</sub>-C<sub>12</sub>arylene, xyllylene, a -CH<sub>2</sub>-CH(OH)-CH<sub>2</sub>- group or a group -CH<sub>2</sub>-CH(OH)-CH<sub>2</sub>-O-D-O- in which D is C<sub>2</sub>-C<sub>10</sub>alkylene, C<sub>6</sub>-C<sub>15</sub>arylene or C<sub>6</sub>-C<sub>12</sub>cycloalkylene or, provided that R<sub>33</sub> is not alkanoyl, alkenoyl or benzoyl, R<sub>34</sub> can also be a divalent radical of an aliphatic, cycloaliphatic or aromatic dicarboxylic acid or dicarbamic acid or the group -CO-, or, if n is 1, R<sub>33</sub> and R<sub>34</sub> together can be the divalent radical of an aliphatic, cycloaliphatic or aromatic 1,2-dicarboxylic or 1,3-dicarboxylic acid.

Possible C<sub>1</sub>-C<sub>12</sub>alkyl or C<sub>1</sub>-C<sub>18</sub>alkyl substituents are as already defined under a).

Possible C<sub>5</sub>-C<sub>7</sub>cycloalkyl substituents are especially cyclohexyl,

As C<sub>7</sub>-C<sub>8</sub>aralkyl, R<sub>33</sub> is especially phenylethyl or, in particular, benzyl. As C<sub>2</sub>-C<sub>5</sub>hydroxyalkyl, R<sub>33</sub> is especially 2-hydroxyethyl or 2-hydroxypropyl.

Examples of R<sub>33</sub> as C<sub>2</sub>-C<sub>18</sub>alkanoyl are propionyl, butyryl, octanoyl, dodecanoyl, hexadecanoyl or octadecanoyl, but preferably acetyl, and examples of R<sub>33</sub> as C<sub>3</sub>-C<sub>5</sub>alkenoyl are especially acryloyl.

Examples of R<sub>34</sub> as C<sub>2</sub>-C<sub>8</sub>alkenyl are allyl, methallyl, 2-but enyl, 2-pentenyl, 2-hexenyl or 2-octenyl.

Examples of R<sub>34</sub> as C<sub>1</sub>-C<sub>4</sub>alkyl which is substituted by a hydroxyl, cyano, alkoxycarbonyl or carbamide group are 2-hydroxyethyl, 2-hydroxypropyl, 2-cyanoethyl, methoxycarbonylmethyl, 2-ethoxycarbonylethyl, 2-aminocarbonylpropyl or 2-(dimethylaminocarbonyl)-ethyl.

Examples of possible C<sub>2</sub>-C<sub>12</sub>alkylene substituents are ethylene, propylene, 2,2-dimethyl-propylene, tetramethyl-ene, hexamethylene, octamethylene, decamethylene or dodecamethylene.

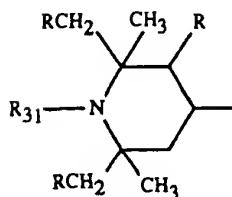
Examples of possible C<sub>6</sub>-C<sub>15</sub>arylene substituents are o-, m- or p-phenylene, 1,4-naphthylene or 4,4'-biphenylene.

As C<sub>6</sub>-C<sub>12</sub>cycloalkylene, D is especially cyclohexylene.

Preferred compounds of the formula IV are those in which n is 1 or 2, R is hydrogen, R<sub>31</sub> is hydrogen or methyl, R<sub>33</sub> is hydrogen, C<sub>1</sub>-C<sub>12</sub>alkyl or a group of the formula

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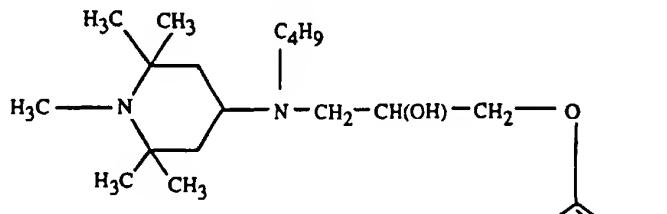
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and, in the event that  $n = 1$ ,  $R_{34}$  is hydrogen or  $C_1$ - $C_{12}$ alkyl and, in the event that  $n = 2$ ,  $R_{34}$  is  $C_2$ - $C_8$ alkylene. The following compounds are examples of polyalkylpiperidine compounds of this class:

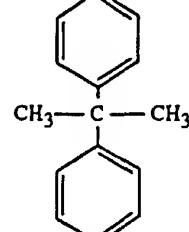
15 37)  $N,N'$ -Bis-(2,2,6,6-tetramethylpiperidin-4-yl)-hexamethylene-1,6-diamine,  
 38)  $N,N'$ -Bis-(2,2,6,6-tetramethylpiperidin-4-yl)-hexamethylene-1,6-diacetamide,  
 39) Bis-(2,2,6,6-tetramethylpiperidin-4-yl)-amine,  
 40) 4-Benzoylamino-2,2,6,6-tetramethylpiperidine,  
 41)  $N,N'$ -Bis-(2,2,6,6-tetramethylpiperidin-4-yl)- $N,N'$ -dibutyladipamide,  
 20 42)  $N,N'$ -Bis-(2,2,6,6-tetramethylpiperidin-4-yl)- $N,N'$ -dicyclohexyl-2-hydroxypropylene-1,3-diamine,  
 43)  $N,N'$ -Bis-(2,2,6,6-tetramethylpiperidin-4-yl)- $p$ -xylylenediamine,  
 44)  $N,N'$ -Bis-(2,2,6,6-tetramethylpiperidin-4-yl)-succindiamide,  
 45) N-(2,2,6,6-Tetramethylpiperidin-4-yl)- $\beta$ -aminopropionic acid dodecyl ester,  
 46) The compound of the formula

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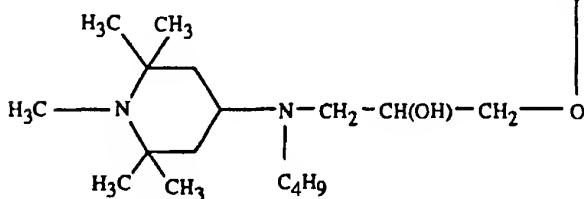


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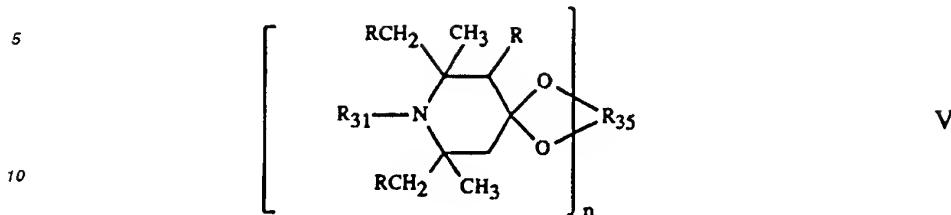
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47)  $N$ -(1-Octyloxy-2,2,6,6-tetramethylpiperidin-4-yl)- $N'$ -dodecyl-oxalamide  
 48) N-(2,2,6,6-Tetramethylpiperidin-4-yl)- $\alpha$ -dodecylsuccinimide,  
 55 49) 4-Methacrylamido-1,2,2,6,6-pentamethylpiperidine.

c) Compounds of the formula V,



in which n is the number 1 or 2, R and R<sub>31</sub> are as defined under a) and, if n is 1, R<sub>35</sub> is C<sub>2</sub>-C<sub>8</sub>alkylene or C<sub>2</sub>-C<sub>8</sub>hydroxyalkylene or C<sub>4</sub>-C<sub>22</sub>acyloxyalkylene and, if n is 2, R<sub>35</sub> is the group (-CH<sub>2</sub>)<sub>2</sub>C(CH<sub>2</sub>)<sub>2</sub>.

Examples of R<sub>35</sub> as C<sub>2</sub>-C<sub>8</sub>alkylene or C<sub>2</sub>-C<sub>8</sub>hydroxyalkylene are ethylene, 1-methylethylene, propylene, 2-ethylpropylene or 2-ethyl-2-hydroxymethylpropylene.

An example of R<sub>35</sub> as C<sub>4</sub>-C<sub>22</sub>acyloxyalkylene is 2-ethyl-2-acetoxymethylpropylene.

The following compounds are examples of polyalkylpiperidine compounds of this class:

50) 9-Aza-8,8,10,10-tetramethyl-1,5-dioxaspiro[5.5]undecane,

51) 9-Aza-8,8,10,10-tetramethyl-3-ethyl-1,5-dioxaspiro[5.5]undecane,

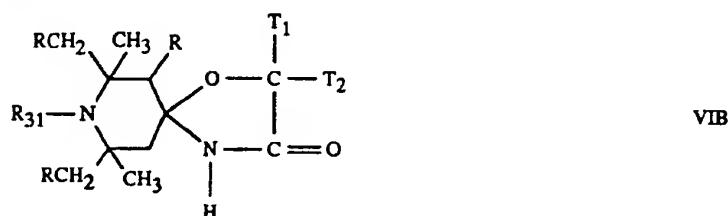
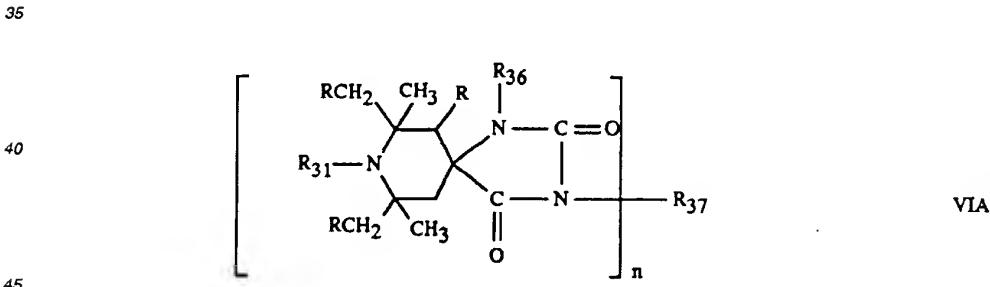
52) 8-Aza-2,7,7,8,9,9-hexamethyl-1,4-dioxaspiro[4.5]decane,

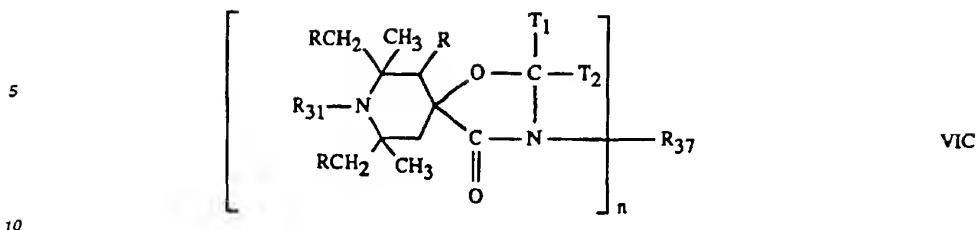
53) 9-Aza-3-hydroxymethyl-3-ethyl-8,8,9,10,10-pentamethyl-1,5-dioxaspiro[5.5]undecane,

54) 9-Aza-3-ethyl-3-acetoxymethyl-9-acetyl-8,8,10,10-tetramethyl-1,5-dioxaspiro[5.5]undecane,

55) 2,2,6,6-Tetramethylpiperidin-4-spiro-2'-(1',3'-dioxane)-5'-spiro-5''-(1'',3''-dioxane)-2''-spiro-4'''-(2'',2'',6'',6'''-tetramethylpiperidine).

d) Compounds of the formulae VIA, VIB and VIC





15 in which n is the number 1 or 2, R and  $R_{31}$  are as defined under a),  $R_{36}$  is hydrogen,  $C_1$ - $C_{12}$ alkyl, allyl, benzyl, glycidyl or  $C_2$ - $C_6$ alkoxyalkyl and, if n is 1,  $R_{37}$  is hydrogen,  $C_1$ - $C_{12}$ alkyl,  $C_3$ - $C_5$ alkenyl,  $C_7$ - $C_9$ aralkyl,  $C_5$ - $C_7$ cycloalkyl,  $C_2$ - $C_4$ hydroxyalkyl,  $C_2$ - $C_6$ alkoxyalkyl,  $C_6$ - $C_{10}$ aryl, glycidyl or a group of the formula  $-(CH_2)_p-COO-Q$  or the formula  $-(CH_2)_p-O-CO-Q$  in which p is 1 or 2 and Q is  $C_1$ - $C_4$ alkyl or phenyl, or, if n is 2,  $R_{36}$  is  $C_2$ - $C_{12}$ alkylene,  $C_4$ - $C_{12}$ alkenylene,  $C_6$ - $C_{12}$ arylene, a group  $-CH_2-CH(OH)-CH_2-O-D-O-CH_2-CH(OH)-CH_2-$  in which D is  $C_2$ - $C_{10}$ alkylene,  $C_6$ - $C_{15}$ arylene or  $C_6$ - $C_{12}$ cycloalkylene, or a group  $-CH_2CH(OZ')CH_2-(OCH_2-CH(OZ')CH_2)_2-$  in which Z' is hydrogen,  $C_1$ - $C_{18}$ alkyl, allyl, benzyl,  $C_2$ - $C_{12}$ alkanoyl or benzoyl,  $T_1$  and  $T_2$  independently of one another are hydrogen,  $C_1$ - $C_{18}$ alkyl or  $C_6$ - $C_{10}$ aryl or  $C_7$ - $C_9$ aralkyl each of which is unsubstituted or substituted by halogen or  $C_1$ - $C_4$ alkyl, or  $T_1$  and  $T_2$ , together with the C atom linking them, form a  $C_5$ - $C_{12}$ cycloalkane ring.

Examples of possible C<sub>1</sub>-C<sub>12</sub>alkyl substituents are methyl, ethyl, n-propyl, n-butyl, sec-butyl, tert-butyl, n-hexyl, n-octyl, 2-ethylhexyl, n-nonyl, n-decyl, n-undecyl or n-dodecyl.

Examples of possible  $C_1-C_{18}$ alkyl substituents can be the groups defined above and also, for example, n-tridecyl, n-tetradecyl, n-hexadecyl or n-octadecyl.

25 Examples of possible  $C_2-C_6$ alkoxyalkyl substituents are methoxymethyl, ethoxymethyl, propoxymethyl, tert-butoxymethyl, ethoxethyl, ethoxpropyl, *n*-butoxethyl, tert-butoxethyl, isopropoxethyl or propoxypropyl.

Examples of  $B_{27}$  as  $C_0\text{-}C_5\text{-alkenyl}$  are 1-propenyl, allyl, methallyl, 2-butenyl or 2-pentenyl.

As  $C_7-C_9$  aralkyl,  $R_{37}$ ,  $T_1$  and  $T_2$  are especially phenyl or, in particular, benzyl. If  $T_1$  and  $T_2$ , together with the C atom, form a cycloalkane ring, this can, for example, be a cyclopentane, cyclohexane, cyclooctane or cyclooctadecane.

in, form a cycloalkane ring; this can, for example, be a cycloheptane, cyclohexane, cyclopentane, etc.

Examples of  $R_{37}$  as  $C_2$ - $C_4$ hydroxyalkyl are 2-hydroxyethyl, 2-hydroxypropyl, 2-hydroxybutyl or 4-hydroxybutyl.  $Ar_1$ ,  $C_6$ , and  $R_1$ ,  $T_1$ , and  $T_2$  are especially phenyl,  $\alpha$ -naphthyl or  $\beta$ -naphthyl each of which is unsubstituted or

As  $C_6-C_{10}$ aryl,  $H_37$ ,  $T_1$  and  $T_2$  are especially phenyl,  $\alpha$ -naphthyl or  $\beta$ -naphthyl each of which is unsubstituted or substituted by halogen or  $C_1-C_6$  alkyl.

Examples of  $R_{37}$  as  $C_2\text{-}C_{12}\text{alkylene}$  are ethylene, propylene, 2,2-dimethylpropylene, tetramethylene, hexamethylene, octamethylene, and decamethylene.

ne, octamethylene, decamethylene or dodecamethylene.

As  $C_4$ - $C_{12}$ alkenylene,  $R_{37}$  is especially 2-butenylene, 2-pentenylene or 3-hexenylene.

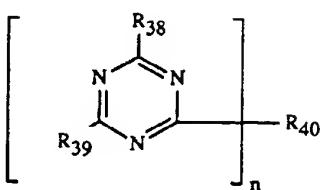
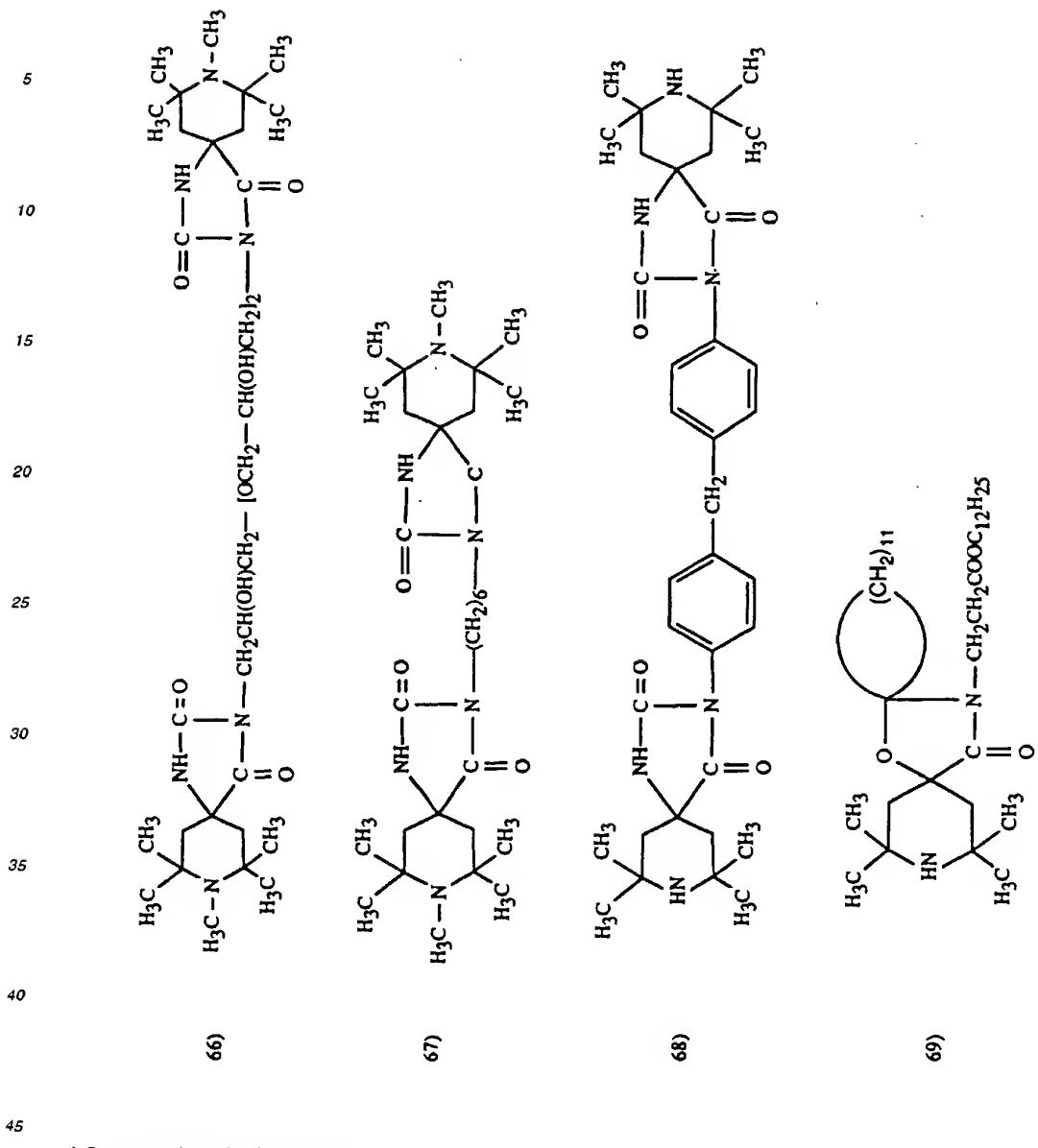
Examples of  $R_{37}$  as  $C_6-C_{12}$ arylene are o-, m- or p-phenylene, 1,4-naphthylene or 4,4'-biphenylene.

Examples of Z' as C<sub>2</sub>-C<sub>12</sub>alkanoyl are propionyl, butyryl, octanoyl or dodecanoyl, b-

As  $C_2-C_{10}$ alkylene,  $C_6-C_{15}$ arylene or  $C_6-C_{12}$ cycloalkylene, D is as defined under b).

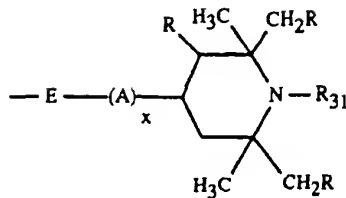
- 56) 3-Benzyl-1,3,8-triaza-7,7,9,9-tetramethylspiro[4.5]decane-2,4-dione,
- 57) 3-n-Octyl-1,3,8-triaza-7,7,9,9-tetramethylspiro[4.5]decane-2,4-dione,
- 58) 3-Allyl-1,3,8-triaza-1,7,7,9,9-pentamethylspiro[4.5]decane-2,4-dione,
- 59) 3-Glycidyl-1,3,8-triaza-7,7,8,9,9-pentamethylspiro[4.5]decane-2,4-dione,
- 60) 1,3,7,7,8,9,9-Heptamethyl-1,3,8-triazaspiro[4.5]decane-2,4-dione,
- 61) 2-Isopropyl-7,7,9,9-tetramethyl-1-oxa-3,8-diaza-4-oxospiro[4.5]decane,
- 62) 2,2-Dibutyl-7,7,9,9-tetramethyl-1-oxa-3,8-diaza-4-oxospiro[4.5]decane,
- 63) 2,2,4,4-Tetramethyl-7-oxa-3,20-diaza-21-oxo-dispiro[5.1.11.2]heneicosane,
- 64) 2-Butyl-7,7,9,9-tetramethyl-1-oxa-4,8-diaza-3-oxospiro[4.5]decane,
- 65) 8-Acetyl-3-dodecyl-1,3,8-triaza-7,7,9,9-tetramethylspiro[4.5]decane-2,4-dione

or the compounds of the following formulae:



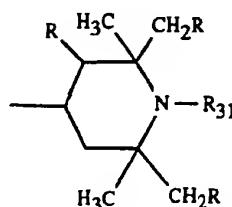
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in which n is the number 1 or 2 and R<sub>39</sub> is a group of the formula



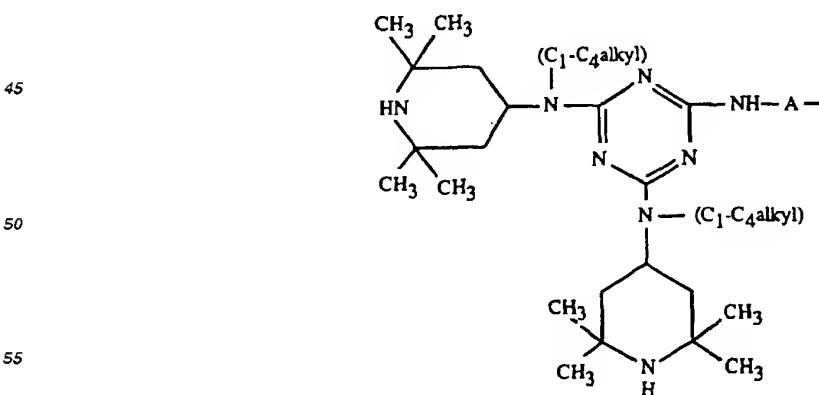
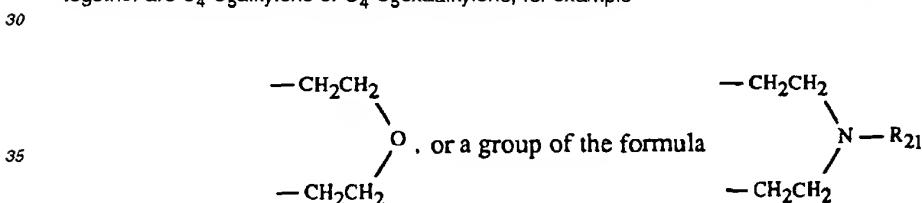
in which R and R<sub>31</sub> are as defined under a), E is -O- or -NR<sub>41</sub>-, A is C<sub>2</sub>-C<sub>6</sub>alkylene or -(CH<sub>2</sub>)<sub>3</sub>-O- and x is the numbers 0 or 1, R<sub>39</sub> is identical with R<sub>38</sub> or is one of the groups -NR<sub>41</sub>R<sub>42</sub>, -OR<sub>43</sub>, -NHCH<sub>2</sub>OR<sub>43</sub> or -N(CH<sub>2</sub>OR<sub>43</sub>)<sub>2</sub>, R<sub>40</sub> is identical with R<sub>38</sub> or R<sub>39</sub>, if n is 1, and, if n is 2, is a group -E-B-E- in which B is C<sub>2</sub>-C<sub>6</sub>alkylene which can be interrupted by -N(R<sub>41</sub>)-, R<sub>41</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl, benzyl or C<sub>1</sub>-C<sub>4</sub>hydroxyalkyl or a group of the formula

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R<sub>42</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl, benzyl or C<sub>1</sub>-C<sub>4</sub>hydroxyalkyl and R<sub>43</sub> is hydrogen, C<sub>1</sub>-C<sub>12</sub>alkyl or phenyl or R<sub>41</sub> and R<sub>42</sub> together are C<sub>4</sub>-C<sub>5</sub>alkylene or C<sub>4</sub>-C<sub>5</sub>oxaalkylene, for example

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Examples of possible C<sub>1</sub>-C<sub>12</sub>alkyl substituents are methyl, ethyl, n-propyl, n-butyl, sec-butyl, tert-butyl, n-hexyl, n-octyl, 2-ethylhexyl, n-nonyl, n-decyl, n-undecyl or n-dodecyl.

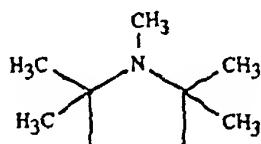
Examples of possible C<sub>1</sub>-C<sub>4</sub>hydroxyalkyl substituents are 2-hydroxyethyl, 2-hydroxypropyl, 3-hydroxypropyl, 2-hydroxybutyl or 4-hydroxybutyl.

5 Examples of A as C<sub>2</sub>-C<sub>6</sub>alkylene are ethylene, propylene, 2,2-dimethylpropylene, tetramethylene or hexamethylene.

Examples of R<sub>41</sub> and R<sub>42</sub> together as C<sub>4</sub>-C<sub>5</sub>alkylene or oxaalkylene are tetramethylene, pentamethylene or 3-oxapentamethylene.

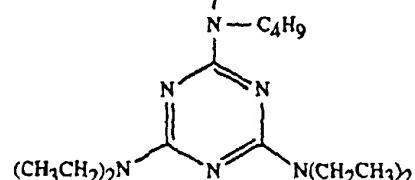
10 The compounds of the following formulae are examples of polyalkylpiperidine compounds of this class:

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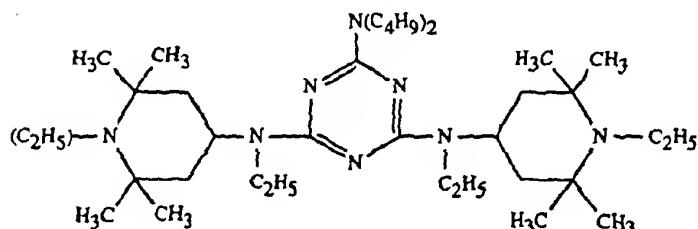
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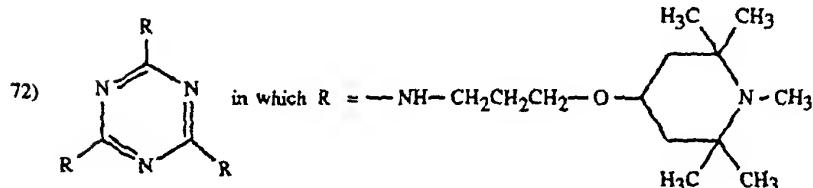
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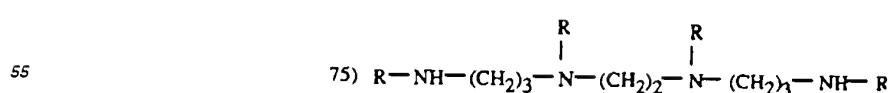
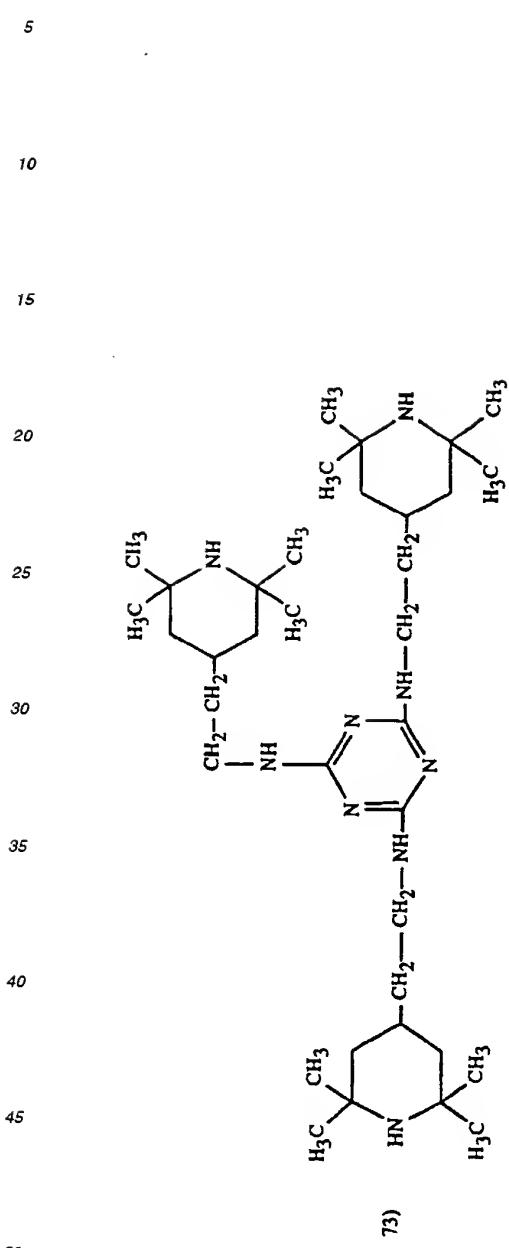
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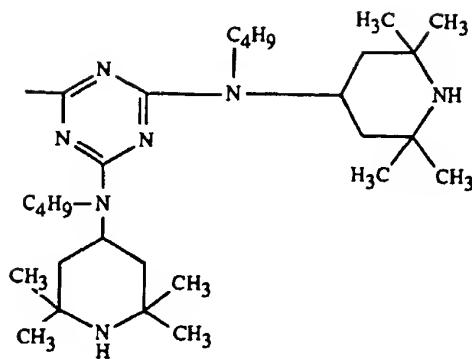
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in which R =

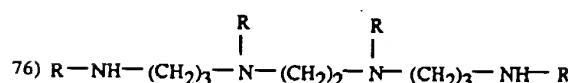
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in which R =

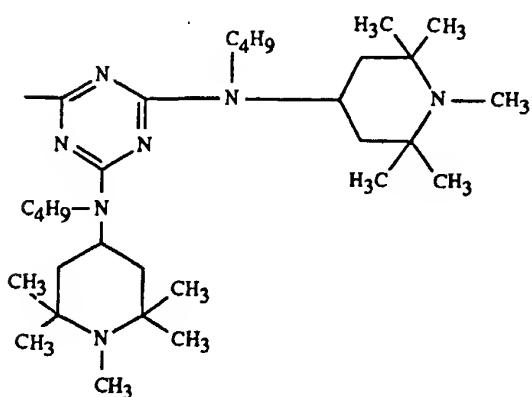
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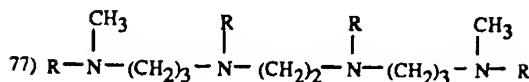
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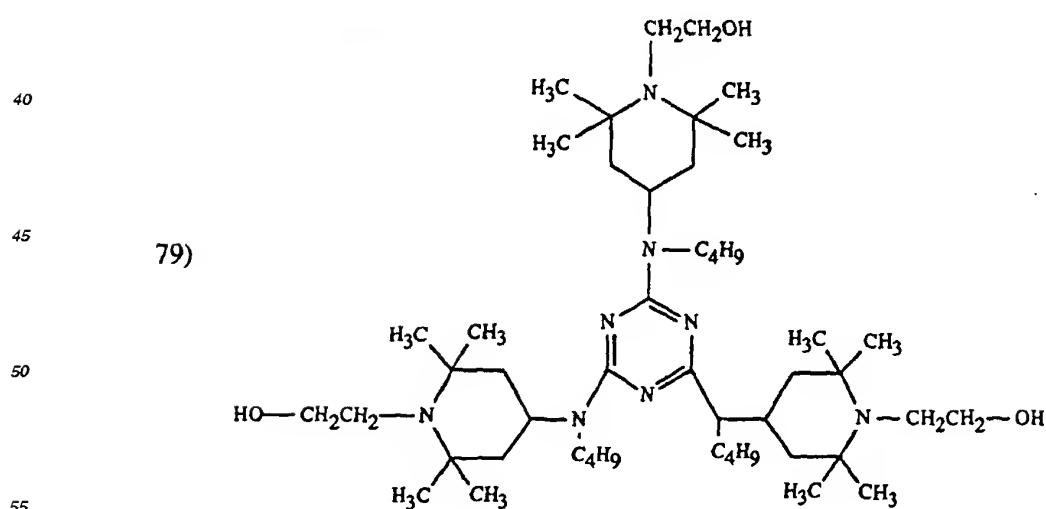
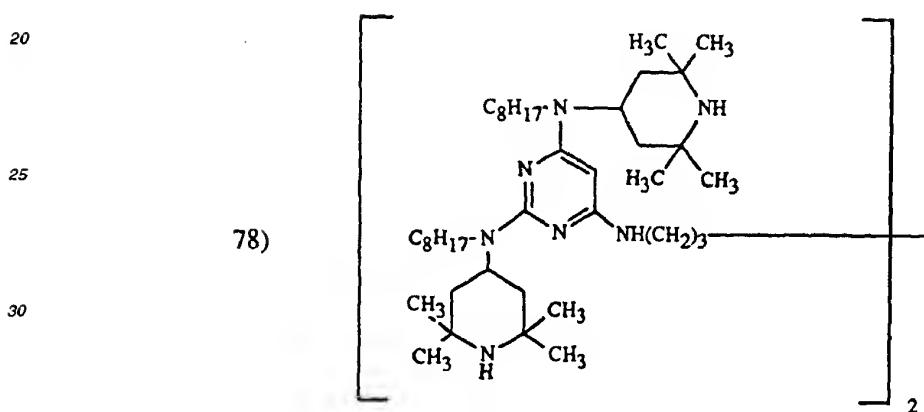
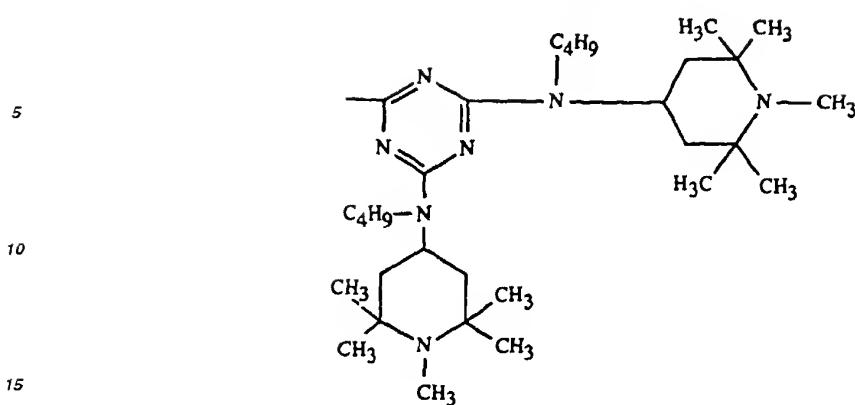


in which R =

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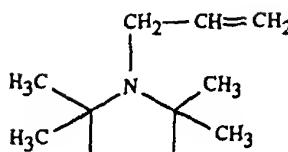
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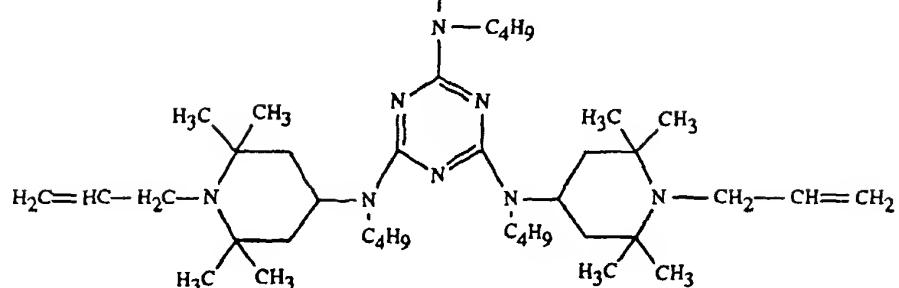
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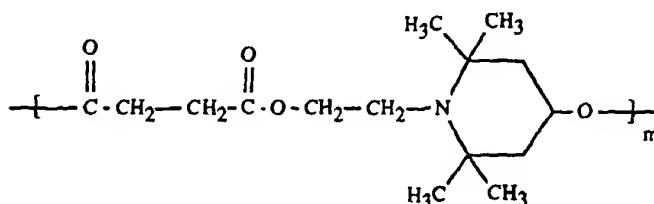


f) Oligomeric or polymeric compounds in which the recurring structural unit contains a 2,2,6,6-tetraalkylpiperidine radical of the formula (I), in particular polyesters, polyethers, polyamides, polyamines, polyurethanes, polyureas, polyamino-triazines, poly(meth)acrylates, poly(meth)acrylamides and copolymers thereof containing radicals of this type.

25 The compounds of the following formulae in which  $m$  is a number from 2 to about 200 are examples of 2,2,6,6-poly-alkylpiperidine light stabilizers of this class.

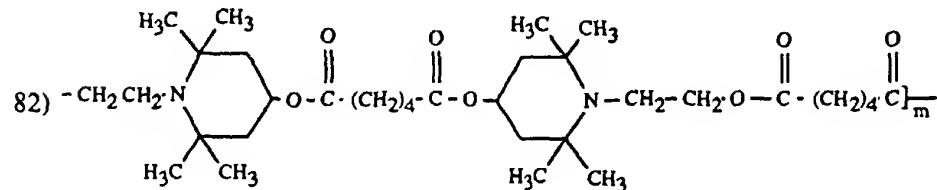
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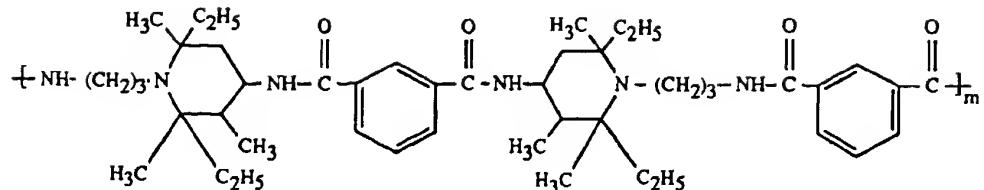


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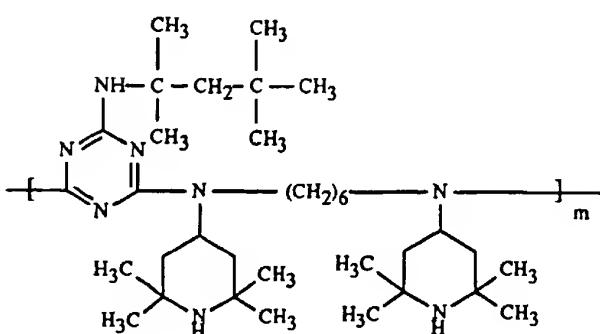
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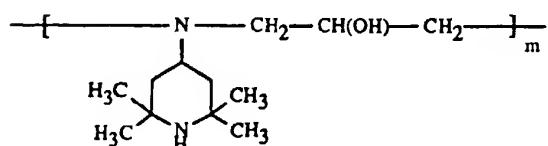
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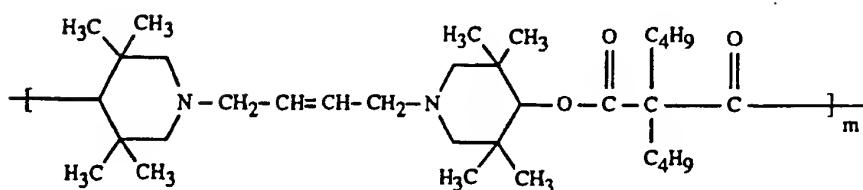
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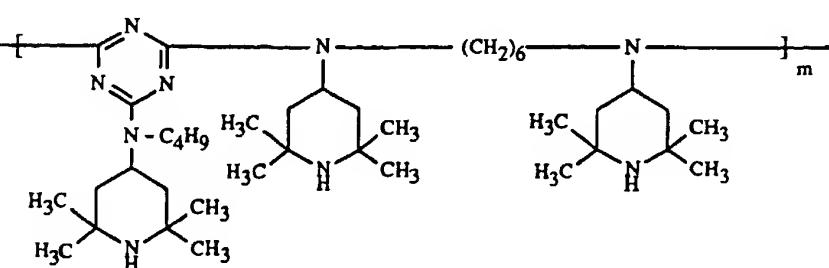


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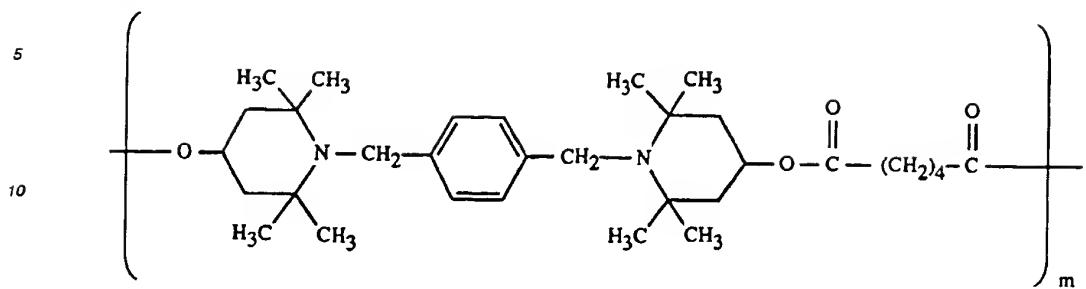
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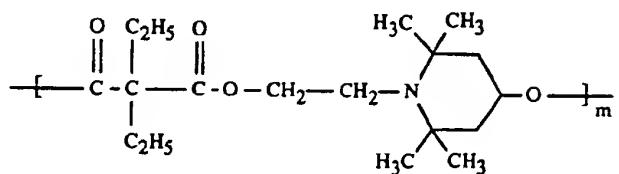
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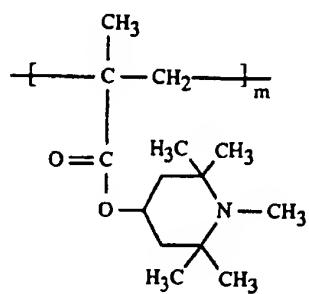
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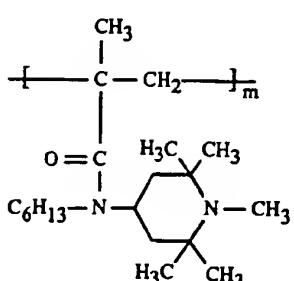
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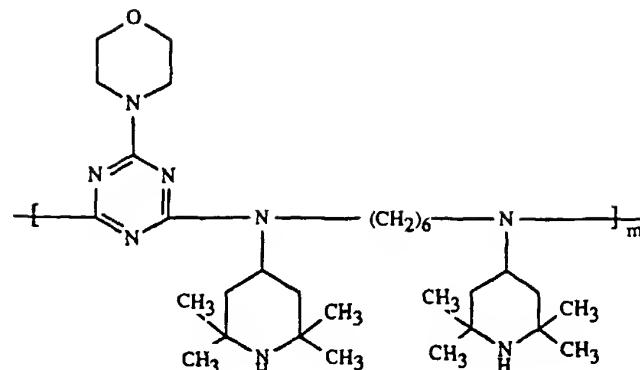
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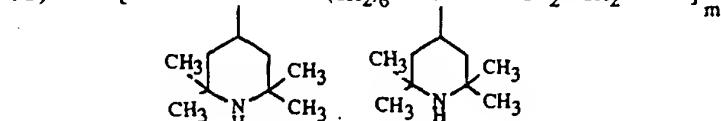
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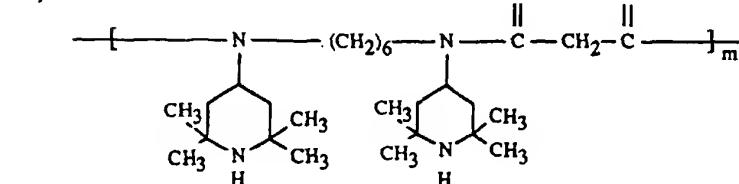
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93)



94)



Of these classes of compounds, classes a), d), e) and f) are particularly suitable, in particular the Compounds Nos. 10, 13, 14, 23, 24, 28, 29, 45, 47, 48, 63, 65, 69, 75, 77, 81, 84, 92 and 93.

Examples of organic materials which can be stabilized with the mixture of (a) and (b) or with a compound of the formula Ia are fats, waxes, oils, cosmetics or photographic materials, but particularly organic polymers. The following classes are examples of polymers of this type:

1. Polymers of monoolefins and diolefins, for example polypropylene, polyisobutylene, polybut-1-ene, polymethylpent-1-ene, polyisoprene or polybutadiene, and polymerizes of cycloolefins, for example cyclopentene or norbornene; and also polyethylene (which can, if desired, be crosslinked), for example high-density polyethylene (HDPE), low-density polyethylene (LDPE) and linear low-density polyethylene (LLDPE).

2. Mixtures of the polymers mentioned under 1), for example mixtures of polypropylene with polyisobutylene or of polypropylene with polyethylene (for example PP/HDPE or PP/LDPE) and mixtures of different types of polyethylene (for example LDPE/HDPE).

3. Copolymers of monoolefins and diolefins with one another or with other vinyl monomers, for example ethylene/propylene copolymers, linear low-density polyethylene (LLDPE) and mixtures thereof with low-density polyethylene (LDPE), propylene/but-1-ene copolymers, propylene/isobutylene copolymers, ethylene/but-1-ene copolymers, ethylene/hexene copolymers, ethylene/methylpentene copolymers, ethylene/heptene copolymers, ethylene/octene copolymers, propylene/butadiene copolymers, isobutylene/isoprene copolymers, ethylene/alkyl acrylate copolymers, ethylene/alkyl methacrylate copolymers, ethylene/vinyl acetate copolymers or ethylene/acrylic acid copolymers and salts thereof (ionomers), and also terpolymers of ethylene with propylene and a diene, such as

hexadiene, dicyclopentadiene or ethylenenorbornene; and also mixtures of such copolymers with one another and with polymers mentioned under 1), for example polypropylene/ethylene/propylene copolymers, LDPE-ethylene/vinyl acetate copolymers, LDPE-ethylene/acrylic acid copolymers, LLDPE-ethylene/vinyl acetate copolymers and LLDPE-ethylene/acrylic acid copolymers.

5

3a. Hydrocarbon resins (for example C<sub>5</sub>-C<sub>9</sub>), including hydrogenated modifications thereof (for example tackifying resins).

10

4. Polystyrene, poly-(p-methylstyrene) and poly-( $\alpha$ -methylstyrene).

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5. Copolymers of styrene or  $\alpha$ -methylstyrene with dienes or acrylic derivatives, for example styrene/butadiene, styrene/acrylonitrile, styrene/alkyl methacrylate, styrene/butadiene/alkyl acrylate, styrene/maleic anhydride or styrene/acrylonitrile/methyl acrylate; mixtures of high impact resistance formed from styrene copolymers and another polymer, for example a polyacrylate, a diene polymer or an ethylene/propylene/diene terpolymer; and block copolymers of styrene, for example styrene/butadiene/styrene, styrene/isoprene/styrene, styrene/ethylene-butylene/styrene or styrene/ethylene-propylene/styrene.

20

6. Graft copolymers of styrene or  $\alpha$ -methylstyrene, for example styrene on polybutadiene, styrene on polybutadiene/styrene or polybutadiene/acrylonitrile copolymers, styrene and acrylonitrile (or methacrylonitrile) on polybutadiene; styrene, acrylonitrile and methyl methacrylate on polybutadiene; styrene and maleic anhydride on polybutadiene; styrene, acrylonitrile and maleic anhydride or maleimide on polybutadiene, styrene and maleimide on polybutadiene, styrene and alkyl acrylates or alkyl methacrylates on polybutadiene, styrene and acrylonitrile on ethylene/propylene/diene terpolymers, styrene and acrylonitrile on polyalkyl acrylates or polyalkyl methacrylates, styrene and acrylonitrile on acrylate/butadiene copolymers and mixtures thereof with the copolymers mentioned under 5), such as are known, for example, as so-called ABS, MBS, ASA or AES polymers.

25

7. Halogen-containing polymers, for example polychloroprene, chlorinated rubber, chlorinated or chlorosulfonated polyethylene, copolymers of ethylene and chlorinated ethylene, epichlorohydrin homopolymers and copolymers, in particular polymers formed from halogen-containing vinyl compounds, for example polyvinyl chloride, polyvinylidene chloride, polyvinyl fluoride or polyvinylidene fluoride; and copolymers thereof, such as vinyl chloride/vinylidene chloride, vinyl chloride/vinyl acetate or vinylidene chloride/vinyl acetate.

30

8. Polymers derived from  $\alpha,\beta$ -unsaturated acids and derivatives thereof, such as polyacrylates and polymethacrylates, polyacrylamides and polyacrylonitriles.

35

9. Copolymers of the monomers mentioned under 8) with one another or with other unsaturated monomers, for example acrylonitrile/butadiene copolymers, acrylonitrile/alkyl acrylate copolymers, acrylonitrile/alkoxyalkyl acrylate copolymers, acrylonitrile/vinyl halide copolymers or acrylonitrile/alkyl methacrylate/butadiene terpolymers.

40

10. Polymers derived from unsaturated alcohols and amines or acyl derivatives or acetals thereof, such as polyvinyl alcohol, polyvinyl acetate, stearate, benzoate or maleate, polyvinylbutyral, polyallyl phthalate or polyallylmelamine; and copolymers thereof with olefins mentioned in item 1.

45

11. Homopolymers and copolymers of cyclic ethers, such as polyalkylene glycols, polyethylene oxide, polypropylene oxide or copolymers thereof with bisglycidyl ethers.

50

12. Polyacetals, such as polyoxymethylene, and also polyoxymethylenes of this type containing comonomers, for example ethylene oxide, and polyacetals modified with thermoplastic polyurethanes, acrylates or MBS.

55

13. Polyphenylene oxides and sulfides and mixtures thereof with styrene polymers or polyamides.

14. Polyurethanes derived from polyethers, polyesters and polybutadienes having terminal hydroxyl groups on the one hand and from aliphatic or aromatic polyisocyanates on the other hand, and also precursors thereof.

60

15. Polyamides and copolyamides derived from diamines and dicarboxylic acids and/or from aminocarboxylic acids or the corresponding lactams, such as polyamide 4, polyamide 6, polyamide 6/6, 6/10, 6/9, 6/12 or 4/6, polyamide 11, polyamide 12 and aromatic polyamides formed from m-xylene, diamine and adipic acid; and polyamides prepared from hexamethylenediamine and isophthalic and/or terephthalic acid and, if appropriate, an elastomer as

modifier, for example poly-2,4,4-trimethylhexamethyleneterephthalamide or poly-m-phenyleneisophthalamide. Block copolymers of the polyamides mentioned above with polyolefins, olefin copolymers, ionomers or chemically attached or grafted elastomers; or with polyethers, for example polyethylene glycol, polypropylene glycol or polytetramethylene glycol. Also polyamides or copolyamides modified with EPDM or ABS; and polyamides which have been condensed during processing ("RIM polyamide systems").

16. Polyureas, polyimides, polyamide-imides and polybenzimidazoles.

17. Polyesters derived from dicarboxylic acids and dialcohols and/or from hydroxycarboxylic acids or the corresponding lactones, such as polyethylene terephthalate, polybutylene terephthalate, poly-1,4-dimethylcyclohexane terephthalate, polyhydroxybenzoates and block polyether esters derived from polyethers having hydroxyl end groups; and also polyesters modified with polycarbonates or MBS.

18. Polycarbonates and polyester carbonates.

19. Polysulfones, polyether sulfones and polyether ketones.

20. Crosslinked polymers derived from aldehydes on the one hand and phenols, urea or melamine on the other hand, such as phenol/formaldehyde, urea/formaldehyde and melamine/formaldehyde resins.

21. Drying and non-drying alkyd resins.

22. Unsaturated polyester resins derived from copolymers of saturated and unsaturated dicarboxylic acids with polyhydric alcohols, and also vinyl compounds as crosslinking agents, and also halogen-containing modifications thereof of low flammability.

23. Crosslinkable acrylic resins derived from substituted acrylic acid esters, for example from epoxyacrylates, urethane acrylates or polyester acrylates.

24. Alkyd resins, polyester resins and acrylate resins crosslinked with melamine resins, urea resins, polyisocyanates or epoxy resins.

25. Crosslinked epoxy resins derived from polyepoxides, for example from bis-glycidyl ethers or cycloaliphatic diepoxides.

26. Natural polymers, such as cellulose, natural rubber, gelatine and the polymer-homologously chemically modified derivatives thereof, such as cellulose acetates, propionates and butyrates or the cellulose ethers, such as methylcellulose; and also colophony resins and derivatives.

40 The use of the compounds according to the invention in coatings of all types is particularly preferred. These can be pigmented or unpigmented coatings or metal effect coatings. They can contain an organic solvent or can be solvent-free or can be aqueous coatings.

45 The coatings can contain, as a binder, at least one of the polymers listed above. The following are examples of coatings containing special binders:

- 50 1. Coatings based on cold-crosslinkable or hot-crosslinkable alkyd, acrylate, polyester, epoxy or melamine resins or mixtures of such resins, if desired with an added acid curing catalyst;
2. Two-component polyurethane coatings based on acrylate, polyester or polyether resins containing hydroxyl groups, and on aliphatic or aromatic polyisocyanates;
3. One-component polyurethane coatings based on masked polyisocyanates which are unmasked during baking;
- 55 4. Two-component coatings based on (poly)ketimines and aliphatic or aromatic polyisocyanates;
5. Two-component coatings based on (poly)ketimines and an unsaturated acrylate resin or a polyacetoacetate resin or a methyl methacrylamidoglycolate;

6. Two-component coatings based on polyacrylates and polyepoxides containing carboxyl or amino groups;

7. Two-component coatings based on acrylate resins containing anhydride groups, and on a polyhydroxyl or polyamino component;

5 8. Two-component coatings based on (poly)oxazolidines and acrylate resins containing anhydride groups, or unsaturated acrylate resins or aliphatic or aromatic polyisocyanates;

10 9. Two-component coatings based on unsaturated polyacrylates and polymalonates;

10 10. Thermoplastic polyacrylate coatings based on thermoplastic acrylate resins or extraneously crosslinking acrylate resins in combination with etherified melamine resins;

15 11. Coating systems based on siloxane-modified or silane-modified or fluorine-modified acrylate resins.

15 The coatings can also be radiation-curable. In this case the binder is composed of monomeric or oligomeric compounds which contain ethylenic double bonds and are converted into a crosslinked, high-molecular form by irradiation with actinic light or with electron beams. In most cases the binder is a mixture of such compounds. In radiation-curable coatings the compounds of formula I can be used also in absence of a sterically hindered amine.

20 The coatings can be applied as one-coat or two-coat systems, it being preferable to add the stabilizers according to the invention to the unpigmented top coat.

The coatings can be applied to the substrates (metal, plastic, wood, etc.) by the customary processes, for example by brushing, spraying, curtain-coating, dipping or electrophoresis.

25 The amount of (a) and (b) added depends on the substrate and the requirements for its stability. In general, 0.01 to 5% by weight, in particular 0.02 to 2% by weight, of the component (a) and 0.02 to 5% by weight, in particular 0.05 to 3% by weight, of the component (b) are added, relative to the polymer.

The two components can be added on their own or as a mixture. Addition is preferably carried out before or during the shaping of the polymer. It can also be carried out as early as the preparation of the polymer, for example before or during polymerization.

30 The compounds of the formula Ia can also be used on their own, ie. without a sterically hindered amine, for stabilizing organic polymers. In this case 0.01 to 10% by weight, for example, preferably 0.05 to 5% by weight, of a compound of the formula Ia is added to the polymer. The use of compounds of the formula Ia as a stabilizer for polycarbonates is of particular interest.

35 In addition to the stabilizers, according to the invention, of the formula Ia or the stabilizer combination (a) + (b), it is also possible to add other stabilizers to the polymer. The following are examples of these:

1. Antioxidants

40 1.1. Alkylated monophenols, for example 2,6-di-tert-butyl-4-methylphenol, 2-tert-butyl-4,6-dimethylphenol, 2,6-di-tert-butyl-4-ethylphenol, 2,6-di-tert-butyl-4-n-butylphenol, 2,6-di-tert-butyl-4-isobutylphenol, 2,6-di-cyclopentyl-4-methylphenol, 2-( $\alpha$ -methylcyclohexyl)-4,6-dimethylphenol, 2,6-di-octadecyl-4-methylphenol, 2,4,6-tricyclohexylphenol, 2,6-di-tert-butyl-4-methoxymethylphenol and 2,6-di-nonyl-4-methylphenol.

45 1.2. Alkylated hydroquinones, for example 2,6-di-tert-butyl-4-methoxyphenol, 2,5-di-tert-butylhydroquinone, 2,5-di-tert-amylhydroquinone and 2,6-diphenyl-4-octadecyloxyphenol.

1.3. Hydroxylated thiobiphenyl ethers, for example 2,2'-thiobis-(6-tert-butyl-4-methylphenol), 2,2'-thiobis-(4-octyl-phenol), 4,4'-thiobis-(6-tert-butyl-3-methylphenol), 4,4'-thiobis-(6-tert-butyl-2-methylphenol).

50 1.4. Alkylidene bisphenols, for example 2,2'-methylenebis-(6-tert-butyl-4-methylphenol), 2,2'-methylenebis-(6-tert-butyl-4-ethylphenol), 2,2'-methylenebis-[4-methyl-6( $\alpha$ -methylcyclohexyl)-phenol], 2,2'-methylenebis-(4-methyl-6-cyclohexylphenol), 2,2'-methylenebis-(6-nonyl-4-methylphenol), 2,2'-methylenebis-(4,6-di-tert-butylphenol), 2,2'-ethylenebis-(4,6-di-tert-butylphenol), 2,2'-ethylenebis-(6-tert-butyl-4-isobutylphenol), 2,2'-methylenebis-[6-( $\alpha$ -methylbenzyl)-4-nonylphenol], 2,2'-methylenebis-[6-( $\alpha$ , $\alpha$ -dimethylbenzyl)-4-nonylphenol], 4,4'-methylenebis-(2,6-di-tert-butylphenol), 4,4'-methylenebis-(6-tert-butyl-2-methylphenol), 1,1-bis-(5-tert-butyl-4-hydroxy-2-methylphenyl)-butane, 2,6-bis-(3-tert-butyl-5-methyl-2-hydroxybenzyl)-4-methylphenol, 1,1,3-tris-(5-tert-butyl-4-hydroxy-2-methylphenyl)butane, 1,1-bis-(5-tert-butyl-4-hydroxy-2-methylphenyl)-3-n-dodecylmercaptopbutane, ethylene glycol bis-[3,3-bis-(3'-tert-butyl-4'-hydroxyphenyl)-butyrate], bis-(3-tert-butyl-4-hydroxy-5-methylphenyl)-

dicyclopentadiene and bis-[2-(3'-tert-butyl-2'-hydroxy-5'-methylbenzyl)-6-tert-butyl-4-methylphenyl] terephthalate.

5 1.5. Benzyl compounds, for example 1,3,5-tris-(3,5-di-tert-butyl-4-hydroxybenzyl)-2,4,6-trimethylbenzene, bis-(3,5-di-tert-butyl-4-hydroxybenzyl) sulfide, isooctyl 3,5-di-tert-butyl-4-hydroxybenzylmercaptoacetate, bis-(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl)-dithiol terephthalate, 1,3,5-tris-(3,5-di-tert-butyl-4-hydroxybenzyl) isocyanurate, 1,3,5-tris-(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl) isocyanurate, dioctadecyl 3,5-di-tert-butyl-4-hydroxybenzylphosphonate, the Ca salt of monoethyl 3,5-di-tert-butyl-4-hydroxybenzylphosphonate and 1,3,5-tris-(3,5-di-cyclohexyl-4-hydroxybenzyl) isocyanurate.

10 1.6. Acylaminophenols, for example 4-hydroxylauranilide, 4-hydroxystearanilide, 2,4-bis-(octylmercapto)-6-(3,5-di-tert-butyl-4-hydroxyanilino)-s-triazine and octyl N-(3,5-di-tert-butyl-4-hydroxyphenyl)-carbamate.

15 1.7. Esters of  $\beta$ -(3,5-di-tert-butyl-4-hydroxyphenyl)-propionic acid, with monohydric or polyhydric alcohols, for example methanol, octadecanol, 1,6-hexanediol, neopentyl glycol, thiodiethylene glycol, diethylene glycol, triethylene glycol, pentaerythritol, tris-(hydroxyethyl) isocyanurate and N,N'-bis-(hydroxyethyl)oxamide.

20 1.8. Esters of  $\beta$ -(5-tert-butyl-4-hydroxy-3-methylphenyl)-propionic acid with monohydric or polyhydric alcohols, for example methanol, octadecanol, 1,6-hexanediol, neopentyl glycol, thiodiethylene glycol, diethylene glycol, triethylene glycol, pentaerythritol, tris-(hydroxyethyl) isocyanurate and N,N'-bis-(hydroxyethyl)oxamide.

25 1.9. Esters of  $\beta$ -(3,5-dicyclohexyl-4-hydroxyphenyl)-propionic acid with monohydric or polyhydric alcohols, for example methanol, octadecanol, 1,6-hexanediol, neopentyl glycol, thiodiethylene glycol, diethylene glycol, triethylene glycol, pentaerythritol, tris-(hydroxyethyl) isocyanurate and N,N'-bis-(hydroxyethyl)oxamide.

30 1.10. Amides of  $\beta$ -(3,5-di-tert-butyl-4-hydroxyphenyl)-propionic acid, for example N,N'-bis-(3,5-di-tert-butyl-4-hydroxyphenylpropionyl)-hexamethylenediamine, N,N'-bis-(3,5-di-tert-butyl-4-hydroxyphenylpropionyl)-trimethylenediamine and N,N'-bis-(3,5-di-tert-butyl-4-hydroxyphenylpropionyl)-hydrazine.

## 2. UV absorbers and light stabilizers

35 2.1. 2-(2'-hydroxyphenyl)-benzotriazoles, for example the 5'-methyl-, 3',5'-di-tert-butyl-, 5'-tert-butyl-, 5'-(1,1,3,3-tetramethylbutyl)-, 5-chloro-3',5'-di-tert-butyl-, 5-chloro-3'-tert-butyl-5'-methyl-, 3'-sec-butyl-5'-tert-butyl-, 4'-octoxy-, 3',5'-di-tert-amyl-, 3',5'-bis-( $\alpha$ , $\alpha$ -dimethylbenzyl)- derivative.

40 2.2. 2-Hydroxybenzophenones, for example the 4-hydroxy-, 4-methoxy-, 4-octoxy-, 4-decyloxy-, 4-dodecyloxy-, 4-benzyloxy-, 4,2',4'-trihydroxy- or 2'-hydroxy-4,4'-dimethoxy- derivative.

45 2.3. Esters of unsubstituted or substituted benzoic acids, for example 4-tert-butylphenyl salicylate, phenyl salicylate, octylphenyl salicylate, dibenzoylresorcinol, bis-(4-tert-butylbenzoyl)-resorcinol, benzoylresorcinol, 2,4-di-tert-butylphenyl 3,5-di-tert-butyl-4-hydroxybenzoate and hexadecyl 3,5-di-tert-butyl-4-hydroxybenzoate.

50 2.4. Acrylates, for example ethyl or isooctyl  $\alpha$ -cyano- $\beta$ , $\beta$ -diphenylacrylate, methyl  $\alpha$ -carbomethoxycinnamate, methyl or butyl  $\alpha$ -cyano- $\beta$ -methyl-p-methoxycinnamate, methyl  $\alpha$ -carbomethoxy-p-methoxycinnamate or N-( $\beta$ -carbomethoxy- $\beta$ -cyanovinyl)-2-methylindoline.

55 2.5. Nickel compounds, for example nickel complexes of 2,2'-thiobis-[4-(1,1,3,3-tetramethylbutyl)-phenol], such as the 1:1 complex or the 1:2 complex, if appropriate with additional ligands, such as n-butylamine, triethanolamine or N-cyclohexyl diethanolamine, nickel dibutylthiocarbamate, nickel salts of monoalkyl 4-hydroxy-3,5-di-tert-butylbenzylphosphonates, such as the methyl or ethyl ester, nickel complexes of ketoximes, such as 2-hydroxy-4-methylphenyl undecyl ketoxime, or nickel complexes of 1-phenyl-4-lauroyl-5-hydroxypyrazole, if appropriate with additional ligands.

60 2.6. Oxamides, for example 4,4'-di-octyloxyoxanilide, 2,2'-di-octyloxy-5,5'-di-tert-butyloxanilide, 2,2'-di-dodecyloxy-5,5'-di-tert-butyloxanilide, 2-ethoxy-2'-ethyloxanilide, N,N'-bis-(3-dimethylaminopropyl)-oxalamide, 2-ethoxy-5-tert-butyl-2'-ethyloxanilide and a mixture thereof with 2-ethoxy-2'-ethyl-5,4'-di-tert-butyloxanilide or mixtures of o-methoxy- and p-methoxy-disubstituted oxanilides and of o-ethoxy- and p-ethoxy-disubstituted oxanilides.

65 3. Metal deactivators, for example N,N'-diphenyloxamide, N-salicylal-N'-salicyloylhydrazine, N,N'-bis-(salicyloyl)-

hydrazine, N,N'-bis-(3,5-di-tert-butyl-4-hydroxyphenylpropionyl)-hydrazine, 3-salicyloylamino-1,2,4-triazole and bis-(benzylidene)-oxalic acid dihydrazide.

5 4. Phosphites and phosphonites, for example triphenyl phosphite, diphenyl alkyl phosphites, phenyl dialkyl phosphites, tris-(nonylphenyl) phosphite, triauryl phosphite, dioctadecyl phosphite, distearyl pentaerythritol diphosphite, tris-(2,4-di-tert-butylphenyl) phosphite, diisodecyl pentaerythritol diphosphite, bis-(2,4-di-tert-butylphenyl) pentaerythritol diphosphite, tristearyl sorbitol triphosphite, tetrakis-(2,4-di-tert-butylphenyl) 4,4'-biphenylene di-phosphonite and 3,9-bis-(2,4-di-tert-butylphenoxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane.

10 5. Compounds which destroy peroxides, for example esters of  $\beta$ -thiodipropionic acid, for example the lauryl, stearyl, myristyl or tridecyl esters, mercaptobenzimidazole, the zinc salt of 2-mercaptopbenzimidazole, zinc dibutylthiocarbamate, dioctadecyl disulfide and pentaerythritol tetrakis-( $\beta$ -dodecylmercapto)propionate.

15 6. Polyamide stabilizers, for example copper salts in combination with iodides and/or phosphorus compounds and salts of divalent manganese.

20 7. Basic co-stabilizers, for example melamine, polyvinylpyrrolidone, dicyandiamide, triallyl cyanurate, urea derivatives, hydrazine derivatives, amines, polyamides, polyurethanes, alkali and alkaline earth salts of higher fatty acids, for example Ca stearate, Zn stearate, Mg stearate, Na ricinoleate and K palmitate, antimony pyrocatecholate or tin pyrocatecholate.

B. PVC stabilizers, for example organotin compounds or salts of barium, cadmium, zinc and lead.

25 Other materials such as are customary in the technology of plastics and paints can also be added. Examples of these are fillers and reinforcing agents, pigments, dyes, plasticizers, solvents, lubricants, flow-control agents, fluorescent brighteners, nucleating agents, antistatic agents or fire-retarding agents.

The invention also relates, therefore, to organic polymers containing, as stabilizers, a sterically hindered amine of the polyalkylpiperidine type and a hydroxyphenyltriazine of the formula I, and also to organic polymers containing a compound of the formula Ia as the stabilizer.

30 The polymers stabilized in this manner can be used in various shapes, for example as films, fibres, tapes, mouldings, profiles, latex, dispersions, paints or cements.

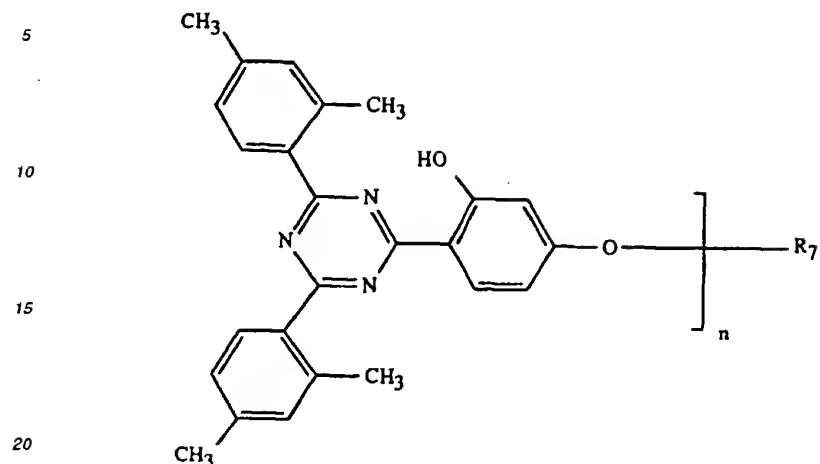
The following examples illustrate the invention in greater detail without intending to limit it to the examples. Parts and percentages are parts by weight and percentages by weight.

35 Preparation Examples

Example 1: 23.8 g (0.06 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis-(2,4-dimethylphenyl)-1,3,5-triazine (prepared as described in US Patent 3,244,708 Example 16) are suspended in 300 ml of xylene. 12.1 g (0.09 mol) of 97% butyl glycidyl ether and 0.75 g (0.006 mol) of dimethylbenzylamine are added to this suspension, and the mixture is heated to reflux temperature. After a reaction time of 5 hours the clear, brownish solution is cooled and clarified by filtration through 100 g of silica gel. The yellow solution is evaporated and the residue is recrystallized from hexane/toluene. This gives 27.3 g of pale yellow crystals of 2-[2-hydroxy-4(3-butoxy-2-hydroxypropoxy)-phenyl]-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin (= 86% yield). Melting point: 80-83°C (Compound 1).

40 In analogous manner the compounds 2 to 28, listed in Table 1, are obtained from 2-(2,4-dihydroxyphenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine and an epoxy compound.

Table 1



Compound	n	R <sub>7</sub>	Physical data
1	1	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> OC <sub>4</sub> H <sub>9</sub>	m.p. 80-83°C
2	1	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> OCOC(CH <sub>3</sub> )=CH <sub>2</sub>	m.p. 100-103°C
3	2	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> O-(CH <sub>2</sub> ) <sub>4</sub> -OCH <sub>2</sub> CH(OH)CH <sub>2</sub> -	m.p. 150-152°C
4	1	-CH <sub>2</sub> CH(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>   OH	m.p. 115-117°C
5	1	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> -OH	m.p. 165-167°C
6	1	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> -O-	m.p. 101-104°C
7	1	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> -O-CH <sub>2</sub> CH(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	m.p. 75-77°C
8	1	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> CH(OH)CH <sub>2</sub> --O-CH <sub>2</sub> CH(OH)CH <sub>2</sub> -COOC <sub>8</sub> H <sub>17</sub>	Oil found: calc.: C: 75.6 % C: 75.9 % H: 9.2 % H: 9.1 %
9	2	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> -O--CH <sub>2</sub> --O-CH <sub>2</sub> CH(OH)CH <sub>2</sub> -	m.p. 100-103°C

Compound	n	R <sub>7</sub>	Physical data
5	10	-CH <sub>2</sub> CH(OH)(CH <sub>2</sub> ) <sub>11</sub> CH <sub>3</sub>	m.p. 102-104°C
	11	-CH <sub>2</sub> CH(OH)(CH <sub>2</sub> ) <sub>7</sub> CH <sub>3</sub>	m.p. 97-99°C
10	12		Oil found: C: 64.9 % H: 7.6 % N: 4.4 % calc.: C: 66.7 % H: 7.16% N: 5.4 %
	13		Oil found: N: 3.75 % calc.: N: 3.43 %
15	14		Oil found: N: 5.17 % calc.: N: 5.18 %
	15	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> OCOC <sub>9</sub> H <sub>19</sub>	Oil found: N: 6.3 % calc.: N: 6.7 %
25	16		m.p. 152-155°C
	17	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> O(C <sub>13</sub> H <sub>27</sub> to C <sub>15</sub> H <sub>31</sub> )	Oil MS, NMR
30	18	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> O(C <sub>12</sub> H <sub>25</sub> to C <sub>14</sub> H <sub>29</sub> )	Oil MS, NMR
	19		Resin found: C=71.3%, H = 6.6% calc.: C=71.4%, H = 6.6%
40	20	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> OCOC <sub>10</sub> H <sub>21</sub> -tert.	Resin MS, NMR
	21	-CH <sub>2</sub> CH(OH)CH <sub>2</sub> OCH <sub>2</sub> CH=CH <sub>2</sub>	m.p. 94-95°C
	22	-CH <sub>2</sub> CH(OH)CH <sub>3</sub>	m.p. 151-153°C
45	23		m.p. 99-101°C
	24		Resin found: N= 8.2 % calc.: N= 8.3 %

55      Example 2: 22.1 g (0.05 mol) of 2-(2-hydroxy-4-hydroxyethoxy-phenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine (prepared as described in US Patent 3,244,708, Example 18), are dissolved in 300 ml of tetrahydrofuran at 40°C and 21 ml (0.15 mol) of triethylamine are added. A solution of 5.05 ml (0.053 mol) of acrylic acid chloride in 20 ml THF is added dropwise with stirring and with cooling the reaction mixture to 25-30°C. After further stirring of two hours the

precipitated ammonium salt is filtered off, the filtrate is evaporated and the residue recrystallized from toluene-hexane mixture to obtain 22 g (88.7% yield) of 2-(2-hydroxy-4-acryloyloxyethoxy-phenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine as slightly yellow crystals (compound No. 25), m.p. 128-129°C.

In analogous manner the compounds No. 26 and 27 were prepared.

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Compound	n	R <sub>7</sub>	Phys. data
25	1	-CH <sub>2</sub> CH <sub>2</sub> OCOCH=CH <sub>2</sub>	m.p. 128-129°C
26	1	-CH <sub>2</sub> CH(CH <sub>3</sub> )OCOCH=CH <sub>2</sub>	m.p. 128-129°C
27	1	-CH <sub>2</sub> CH <sub>2</sub> OCOCH(CH <sub>3</sub> )=CH <sub>2</sub>	m.p. 128-129°C

Example 3: 20 g (0.04 mol) of 2-(2-hydroxy-4-ethoxycarbonylmethoxyphenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine (prepared as described in US Patent 3,244,708, Example 19), are dissolved in 100 ml of toluene, and 5 g (0.048 mol) of 2-methylpentanol and 0.5 g of dibutyltin oxide as catalyst are added, and the mixture is heated to reflux temperature. In the course of this a toluene/ethanol mixture is distilled off. The toluene is replenished dropwise from a dropping funnel. The transesterification reaction is complete after 2 hours. The solution is cooled and filtered through 80 g of silica gel and is then evaporated. The residue is recrystallized from ethanol. This gives 14 g of the compound 28 (see Table 2). Melting point: 87-89°C.

Compounds 29 to 37 are obtained analogously by transesterification with the corresponding alcohols.

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Table 2

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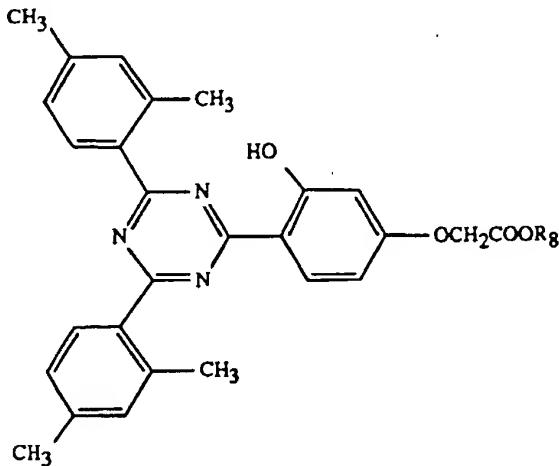
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Compound	R <sub>8</sub>	Physical data
28	-CH <sub>2</sub> CH(CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> ) <sub>2</sub>	m.p. 87-89°C
29	-CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	m.p. 136-138°C
30	-C <sub>8</sub> H <sub>17</sub> (isomer mixture)	Waxlike calcd. found C 74.05% C 73.98%
31	-(CH <sub>2</sub> CH <sub>2</sub> O) <sub>n</sub> H      n ≈ 7	Oil calcd. found C 64.47% C 64.75%
32	-C <sub>10</sub> H <sub>21</sub> (isomer mixture)	Waxlike calcd. found C 74.59% C 74.76%
33	-CH <sub>2</sub> CH(OCH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> ) <sub>2</sub>	Resin calcd. found C 70.45% C 70.12%
34	-CH <sub>2</sub> P(OC <sub>4</sub> H <sub>9</sub> ) <sub>2</sub> O	m.p. 75-78°C
35	-(CH <sub>2</sub> ) <sub>8</sub> CH=CH-(CH <sub>2</sub> ) <sub>7</sub> -CH <sub>3</sub>	Waxlike calcd. found C 76.96% C 77.02%
36	-(CH <sub>2</sub> ) <sub>2</sub> O(CH <sub>2</sub> ) <sub>2</sub> OC <sub>6</sub> H <sub>13</sub>	Resin calcd. found C 70.68% C 70.53%
37	-(CH <sub>2</sub> CH <sub>2</sub> O) <sub>n</sub> -H      n = 9	Resin calcd. found C 63.44% C 63.54%

55      Example 4: 9.1 g (0.02 mol) of 2-(2-hydroxy-4-carboxymethoxy-phenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine (prepared as described in US Patent 3,244,708, Example 16) are suspended in 40 ml of thionyl chloride, and 1 ml of DMF is added. The mixture is heated at reflux temperature for 2 hours. A clear yellow solution is formed with moderate evolution of gas. This solution is evaporated to give 9.5 g of [4-(4,6-di-2',4'-xylyl-s-triazin-2-yl)-3-hydroxyphenoxy]-

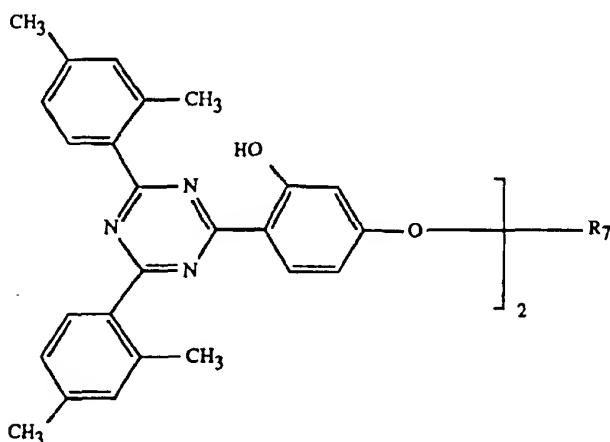
5 acetyl chloride (Compound 38). This acid chloride is dissolved in 100 ml of toluene. 19.3 g (0.08 mol) of bis-(2-ethylhexyl)-amine are added dropwise at room temperature. The reaction proceeds exothermically from 22°C to 40°C. The mixture is left for 1 hour at room temperature to complete the reaction. The product is then purified by column chromatography over silica gel. This gives approx. 5 g of a pale yellow, highly viscous oil, [4-(4,6-di-2',4'-xylyl-s-triazin-2-yl)-3-hydroxyphenoxy]-acetic acid bis-(2-ethylhexyl)-amide (Compound 39).

Calcd.	C 76.07%, C 75.91%,	H 8.61%, H 8.46%,	N 8.25%, N 8.16%
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10 Example 5: 39.7 g (0.1 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine are dissolved in 250 ml of DMF. 20.7 g of potassium carbonate are added to this brownish solution. An orange suspension is formed. 17 g (0.052 mol) of 1,12-dibromododecane are added and the mixture is heated at 100°C. The reaction is complete after 2 hours. The cooled reaction solution is then poured into 1.5 l of water, and the precipitate is filtered off and washed with 2-3 times 100-200 ml of H<sub>2</sub>O. The crystals are then recrystallized from xylene. Melting point: 158-163°C (Compound 40).

15 Compounds 41 and 42 are obtained analogously, using 1,6-dibromohexane, 1,4-dichloro-2-butene and p-xylylenedibromid..

20 Table 3



Compound	R <sub>7</sub>	Physical data
40	-(CH <sub>2</sub> ) <sub>12</sub> -	m.p. 158 - 163°C
41	-(CH <sub>2</sub> ) <sub>6</sub> -	m.p. 203 - 205°C
42	-CH <sub>2</sub> -CH=CH-CH <sub>2</sub> -	m.p. 230 - 235°C
43	-CH <sub>2</sub> --CH <sub>2</sub> -	m.p. 252 - 254°C

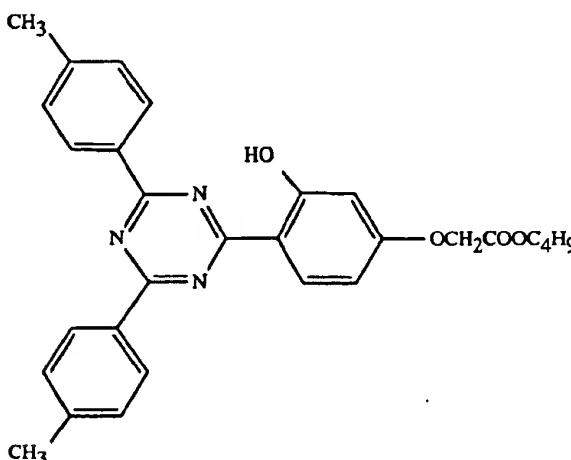
Example 6: 20 g (0.05 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine are suspended in 100 ml of toluene, and 100 ml of 1N NaOH and 1 g of tetrabutylammonium bromide are added. The mixture is heated for 10 minutes at 80°C and then cooled, to give a yellow paste. 12.3 ml (0.15 mol) of epibromohydrin are added to this paste and the mixture is again heated for 6 hours at 50°C. When the reaction is complete, methylene chloride is added to the organic phase, which is separated off from the aqueous phase and filtered through Hyflo. It is then evaporated and the crystalline residue is recrystallized from toluene. This gives 14 g of pale yellow crystals, 2-(2-hydroxy-4-glycidyloxyphenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine (Compound 44), melting point 152-155°C.

Example 7: 9.07 g (0.02 mol) of Compound 44 and 7.95 g (0.02 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine are suspended in 150 ml of xylene. 0.2 g of dimethylaminopyridine are added and the mixture is heated at reflux temperature. The reaction is complete after 4 hours. The mixture is diluted with 200 ml of toluene and cooled. In the course of this the product is precipitated. It is filtered off and purified further by recrystallization from toluene together with a little Fuller's earth. This gives 9.1 g of pale beige crystals, 1,3-bis-[4-[4,6-di-(2,4-dimethylphenyl)-s-triazine-2-yl]-3-hydroxy-phenoxy]-2-hydroxypropane (Compound 45), melting point: 222-224°C.

Example 8: 18.5 g (0.05 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis-(4-methylphenyl)-1,3,5-triazine (Helv. Chim. Acta 55, 1566 (1972)) and 3.9 g (0.05 mol) of potassium methoxide are suspended in 200 ml of anhydrous n-butanol, and 7.4 g (0.06 mol) of butyl chloroacetate are added dropwise between 50°C and 100°C. After 17 hours under reflux the solvent is evaporated and the crude product is washed with water, dried and recrystallized from petroleum ether (boiling point 110°C-140°C) (Compound No. 46).

Melting point: 142-146°C.

Calcd.	C 72.03	H 6.04	N 8.69%
Found	C 71.88	H 6.01	N 8.81%



Example 9:

A) 55.4 g (0.15 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis-(4-methylphenyl)-1,3,5-triazine are dissolved in refluxing 2-butanone (1 l) in the presence of 27.6 g (0.2 mol) of K<sub>2</sub>CO<sub>3</sub>. A catalytic amount (0.2 g) of KI is added, and 36.8 g (0.3 mol) of ethyl chloroacetate are added dropwise over 1h30. After refluxing for 25 h, the reaction mixture is cooled in ice, the precipitate is filtered off, washed with water to neutrality and then with methanol. Drying in the oven yields the analytically pure 2-(2-hydroxy-4-ethoxycarbonylmethoxyphenyl)-4,6-bis-(4-methylphenyl)-1,3,5-triazine (54 g, m.p. 166-167°C) (Compound No. 47).

B) 11.4 g (0.025 mol) of compound 47 and 3.9 g (0.03 mol) of octanol (isomeric mixture) are refluxed in 120 ml xylene for 22 h in the presence of 0.62 g (2.5 mmol) of dibutyltinoxide. During the reaction a xylene/ethanol mixture is distilled off, the xylene being replenished dropwise from a dropping funnel. The reaction mixture is cooled to 40°C, filtered through a pad of Prolith and evaporated. Drying at 100°C/0.01 mmHg affords the transesterification product as a viscous yellow oil (12.5 g) that solidifies to a wax (Compound No. 48).

Calcd.	C = 73.44%, C = 72.95%,	H = 6.91%, H = 6.70%,	N = 7.79% N = 7.48%
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Compounds No. 49 to 52 (Table 4) are obtained analogously by transesterification with the corresponding alcohols.

**Table 4**

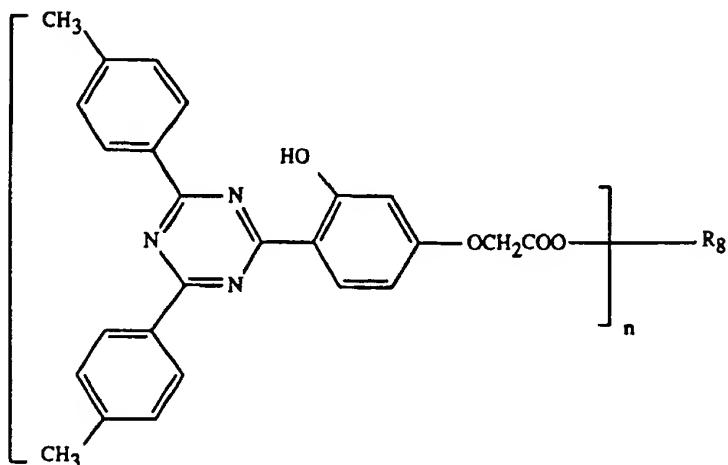
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Compound	n	R <sub>7</sub>	Physical data
49	1	-CH <sub>2</sub> CH <sub>2</sub> OCH <sub>3</sub>	m.p. 150 - 153°C
50	1	-CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub> OC <sub>2</sub> H <sub>5</sub>	m.p. 118 - 121°C
51	2	-(CH <sub>2</sub> ) <sub>6</sub> -	m.p. 235 - 238°C
52	4	-CH <sub>2</sub> -C(CH <sub>3</sub> ) <sub>3</sub> -	m.p. 219 - 231°C

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Example 10: 40.6 g (0.11 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis-(4-methylphenyl)-1,3,5-triazine are dissolved in refluxing 2-butanone (500 ml) in the presence of 20.7 g (0.15 mol) of K<sub>2</sub>CO<sub>3</sub>. 18.1 g (0.055 mol) of 1,12-dibromododecane dissolved in 100 ml of 2-butanone are added dropwise over 3 h and the mixture is refluxed for 35 h. In the course of this, precipitation of the final product occurs. The reaction mixture is cooled in ice, the precipitate is filtered off, washed with water to neutrality and then with methanol. Drying in the oven affords 46.2 g of the analytically pure compound No. 53 (Table 5). Off-white solid, m.p. 219-220°C.

Analogous treatment with 1,6-dibromohexane or epibromohydrin gives compounds No. 54 and 55 (Table 5).

Table 5

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Compound n R<sub>7</sub> Physical data

53 2 -(CH<sub>2</sub>)<sub>12</sub>- m.p. 219-220°C

54 2 -(CH<sub>2</sub>)<sub>6</sub>-O- m.p. 247-249°C

55 1 -CH<sub>2</sub>-CH-CH<sub>2</sub> m.p. 205-208°C

56 1 -CH<sub>2</sub>-CH-CH<sub>2</sub>-OC<sub>4</sub>H<sub>9</sub> m.p. 166-167°C

57 1 -CH<sub>2</sub>-CH-CH<sub>2</sub>-O-CH<sub>2</sub>-CH-C<sub>4</sub>H<sub>9</sub>  
OH C<sub>2</sub>H<sub>5</sub> m.p. 123-125°C

58 1 -CH<sub>2</sub>-CH-CH<sub>2</sub>-O-CH<sub>2</sub>-O-CH<sub>2</sub>-CH-CH<sub>2</sub> Yellow oil  
calc. found  
C 66.02 % 64.52 %  
H 6.89 % 6.98 %  
N 5.63 % 5.23 %

59 1 -CH<sub>2</sub>-CH-CH<sub>2</sub>-O-C-C=CH<sub>2</sub>  
OH m.p. 183-185°C

60 1 -CH<sub>2</sub>-CH-CH<sub>2</sub>-O-C-C<sub>9</sub>H<sub>19</sub>  
OH m.p. 135-138°C

61 2 -OC-(CH<sub>2</sub>)<sub>6</sub>-CO- m.p. 220-228°C

55 Example 11: A mixture of 14.8 g (0.04 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis-(4-methylphenyl)-1,3,5-triazine, 10.4 g (0.08 mol) of butylglycidylether and 2.1 g (6.5 mmol) of tetrabutylammoniumbromide is refluxed in 150 ml of 2-butanone during 85 h. The reaction mixture is cooled in ice, the precipitate is filtered off, washed with water and methanol, and dried in the oven. This yields 17.5 g of a pale yellow solid, m.p. 166-167°C (Compound No. 56, Table 4).

Analogous treatment with the corresponding glycidyl ethers or esters yields the compounds 57 to 60 (Table 4).

Example 12: A solution of 3.6 g (0.015 mol) of sebacyl chloride in 10 ml toluene is added dropwise at 10°C to a solution of 2-(2,4-dihydroxyphenyl)-4,6-bis(4-methylphenyl)-1,3,5-triazine and 3.3 g (0.033 mol) of triethylamine in 100 ml toluene and 50 ml of DMF. After 50 h at room temperature, the reaction mixture is diluted with water, filtered, the precipitate is washed with water, methanol and chloroform, and dried in the oven. 8.7 g of the diester 61 (Table 4) are obtained as a pale beige solid, m.p. 220-228°C.

Example 13: When 20.5 g (0.06 mol) of 2-(2,4-dihydroxyphenyl)-4,6-diphenyl-1,3,5-triazine are treated with 22.8 g (0.12 mol) of 2-ethylhexyl glycidyl ether analogously to example 11, 23.3 g of the pale yellow compound No. 62 (m.p. 116 to 118°C) are obtained.

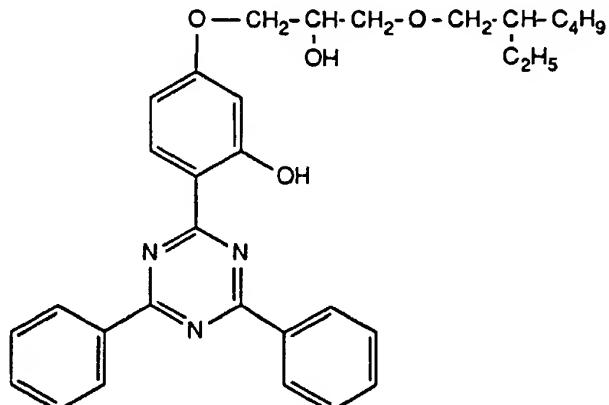
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Example 14: 7.9 g (0.02 mol) of 2-(2,4-dihydroxyphenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine, 5.7 g (0.02 mol) of a technical mixture of dodecyl, tridecyl and tetradecyl glycidyl ethers (Araldite® DY 025) and 0.15 g of ethyl triphenylphosphonium iodide in 50 ml of mesitylene are heated at 160-165°C for 10 hours, with stirring. The reaction solution is washed with water, dried over MgSO<sub>4</sub> and filtered. The filtrate is stirred for 2 hours with 2 g of Filtrol 4, filtered and evaporated in vacuo. The residue is freed from residual mesitylene at 120°C and 0.01 mmHg. This leaves 12.1 g of an oil (Compound No. 63).

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C <sub>41</sub> H <sub>55</sub> N <sub>3</sub> O <sub>4</sub>	Calcd. Found.	C 75.30 C 75.0	H 8.48 H 8.1	N 6.43% N 6.8%
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#### Application Examples

##### Example 15: Stabilization of a 2-coat metallic coating

A clear lacquer is prepared by mixing the following components:

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59.2	Parts of a commercial acrylic resin (Uracron® XB 2263, DMS Resins BV, NL) which is a 50% solution in xylene,
11.6	parts of a 90% melamine resin (Cymel® 327, Amer. Cyanamid Corp.)
19.4	parts of xylene
5.5	parts of butylglycol acetate
9.3	parts of butanol
1.0	part of a levelling agent (Baysilon® A, Bayer AG) which is a 1% solution in xylene
100	parts lacquer containing 40% solids.

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Samples of this lacquer are mixed with 0.5% (related to the solids) of di(1,2,2,6,6-pentamethylpiperidin-4-yl) sebacate (= HA-1) and 1.5% (related to the solids) of a triazine stabilizer listed in table 6.

The clear lacquer is diluted to a sprayable state with a mixture of 13:6:1 xylene/butanol/butyl glycol acetate and

is sprayed onto a previously prepared aluminum sheet (coil-coated and primed with a silver-metallic paint based on polyester/cellulose acetobutyrate/melamine resin), and the sheet is baked for 30 minutes at 130°C. This results in a dry film thickness of 40-50 µm of clear lacquer. A clear lacquer containing no light stabilizer is used as a comparison.

5 The samples are exposed in a UVCOR, Type UVB-313, weathering equipment with a cycle of 8 hrs of dry UV irradiation at 70°C and 4 hrs of condensation at 50°C. The 20°-gloss of the samples is measured in certain intervals of weathering time using the method of DIN 67530. The results are given in Table 6.

Table 6

10	Piperidin Stabilizer	Triazine Stabilizer (Compound No.)	20°-Gloss after exposure of				
			0	1600	3200	4800	6400 hrs
	-	-	86	31	-	-	-
15	0.5 % HA-1	1.5 % 1	86	79	74	77	61
	0.5 % HA-1	1.5 % 30	86	74	68	66	57
	0.5 % HA-1	1.5 % 32	82	69	72	68	59
	0.5 % HA-1	1.5 % 33	85	79	74	72	64

Example 16

20 The preparation of the samples and their testing is the same as in Example 15. As comparison C-1 and C-2, two triazine derivatives known from US Patent 4,619,956, are used as triazine stabilizers.

C-1 = 2-(2-hydroxy-4-dodecyloxyphenyl)-4,6-diphenyl-1,3,5-triazine

C-2 = 2-(2-hydroxy-4-octadecyloxyphenyl)-4,6-diphenyl-1,3,5-triazine

25 The results are shown in Table 7.

Table 7

30	Piperidin Stabilizer	Triazine Stabilizer	20°-Gloss after exposure of			
			0	1600	3200	4000 hrs
	-	-	84	19	-	-
35	0.5 % HA-1	1.5 % Compound 34	84	80	78	59
	0.5 % HA-1	1.5 % Compound 35	85	81	80	75
	0.5 % HA-1	1.5 % Compound 36	85	80	78	76
	0.5 % HA-1	1.5 % Compound 37	85	80	79	77
	0.5 % HA-1	1.5 % Compound 39	85	81	72	74
	0.5 % HA-1	1.5 % C-1	85	54	35	37
40	0.5 % HA-1	1.5 % C-2	79	38	34	37

Example 17:

A similar clear lacquer is prepared from

45	54.5	parts of Uracron® XB 2263
	16.3	parts of Cymel® 327
	19.4	parts of xylene
50	5.5	parts of butylglycol acetate
	3.3	parts of butanol
	1	part of Baysilon® A
	100	parts lacquer containing 41.5% solids.

55 Samples of this lacquer are mixed with 0.5% (related to the solids) of HA-1 and 1.5% (related to the solids) of a triazine stabilizer listed in Table 8. The lacquer is diluted to a sprayable state by diluting with a 13:6:1 mixture of xylene/butanol/butylglycol acetate and is sprayed onto an aluminium sheet which is coil coated and primed with a metallic blue commercial paint (Glasomax®, Glasurit GmbH, Münster). After baking for 30 minutes at 130°C the clear lacquer

layer has a thickness of 40-45 µm.

The samples are weathered in a UVCOR, Type UVB 313, as described in Example 15 and the 20°-gloss of the weathered samples is measured according to method DIN 67530. The results are shown in Table 8.

5

Table 8

10	Piperidin Stabilizer	Triazine Stabilizer(Compound No.)	20°-Gloss after exposure of			
			0	800	1600	2000 hrs
	-	-	85	75	42	20-
10	0.5 % HA-1	1.5 % 4	86	80	78	78
	0.5 % HA-1	1.5 % 6	87	81	81	81
	0.5 % HA-1	1.5 % 7	85	81	81	79
	0.5 % HA-1	1.5 % 10	86	82	80	80
15	0.5 % HA-1	1.5 % 11	86	81	81	78
	0.5 % HA-1	1.5 % 17	86	81	81	81
	0.5 % HA-1	1.5 % 18	87	81	80	80
	0.5 % HA-1	1.5 % 62	84	80	78	81

20

#### Example 18

The two-coat samples are prepared as described in Example 15, however, no piperidin stabilizer is added. The samples are weathered in a Weatherometer with cycle CAM 159 and with using an edge filter of type A. Measured is the 20°-gloss before and after exposure, the results are shown in Table 9.

25

Table 9

30	Triazine Stabilizer (Compound No.)	20°-Gloss after exposure of		
		0	2000	3600 hrs
	none	85	47	25
	34	86	71	64
	35	86	72	61
	36	86	73	60

35

#### Example 19

The two-coat samples are prepared as described in Example 17, however, no piperidin stabilizer is added. The samples are weathered in a UVCOR, type UVB-313 with cycle of 8 hrs of UV irradiation at 70°C and 4 hrs of condensation at 50°C. The 20°-gloss of the sample is measured according to method DIN 67530 before and after exposure. Further the change of colour shade  $\Delta E$  after exposure is measured according to method DIN 6174. The results are shown in Table 10.

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Table 10

45	Triazine Stabilizer (Compound No.)	20°-Gloss after exposure of			$\Delta E$ after 1600 h
		0	800	1600 hrs	
	none	85	75	42	6.6
	6	84	80	80	1.3
	7	84	81	80	1.3
50	17	86	81	80	1.6
	18	86	81	80	1.4
	62	86	82	81	1.0

#### Example 20: Stabilization of a radiation-curable system

55

A clear lacquer is prepared by mixing 14 parts of tris(2-acryloyloxyethyl)isocyanurate with 6 parts of 1,6-hexanediol diacrylate and 0.4 parts of 1-benzoylcyclohexanol (as photoinitiator). A triazine stabilizer is added in an amount of 1.5%. The lacquer is coated to a white coil-coated aluminium sheet in a dry-thickness of about 40 µm.

The samples are hardened by UV irradiation in a PPG processor (2 × 80 W/cm, 2 × 10 m (min) and weathered

in a UVCOR, type UVB-313 with a cycle of 4 hours of UV irradiation at 60°C and 4 hrs of condensation at 50°C.

The yellowness index (method ASTM D 1925-70) of the samples is measured before and after the exposure. The results are shown in Table 11.

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Table 11

Triazine Stabilizer (Compound No.)	Yellowness Index after exposure of			
	0	200	400	600 hrs
none	-1.0	19.6	28.0	35.3
1.5 % 17	-0.6	1.8	1.8	2.1

## Claims

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Claims for the following Contracting States : AT, BE, CH, DE, FR, GB, IT, LI, NL

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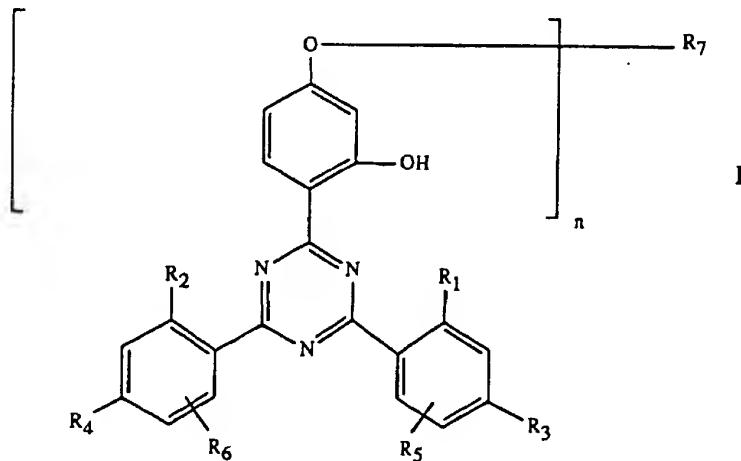
1. An organic material which has been stabilized against damage caused by light, heat and oxygen and which contains
  - (a) at least one sterically hindered amine of the polyalkylpiperidine type and
  - (b) at least one o-hydroxyphenyl-s-triazine, wherein the triazine compound (b) is a compound of the formula I

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in which n is 1 to 4,

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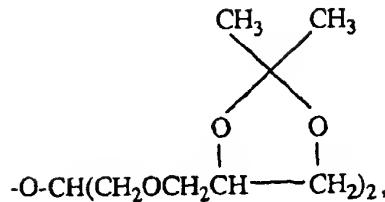
R<sub>1</sub> and R<sub>2</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl or trifluoromethyl, R<sub>3</sub> and R<sub>4</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen and, in the event that n = 1, can also be a radical -OR<sub>7</sub>, R<sub>5</sub> and R<sub>6</sub> independently of one another are H, C<sub>1</sub>-C<sub>12</sub>alkyl or halogen, R<sub>7</sub>, if n is 1, is

50

a) C<sub>1</sub>-C<sub>18</sub>alkyl which is substituted by one or more of the groups OH, C<sub>1</sub>-C<sub>18</sub>alkoxy, C<sub>3</sub>-C<sub>18</sub>alkenoxy, halogen, phenoxy (which is unsubstituted or substituted by C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen), furyloxy,

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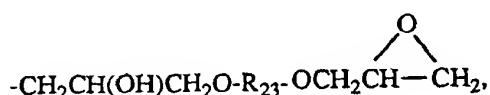
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-COOH, -COOR<sub>9</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>), -NHCOR<sub>11</sub>, -CN and/or by -O-CO-R<sub>11</sub>,

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- b) C<sub>4</sub>-C<sub>50</sub>alkyl which is interrupted by one or more O and can be substituted by OH or/and glycidyloxy,
- c) C<sub>3</sub>-C<sub>6</sub>alkenyl,
- d) glycidyl or a group

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- e) cyclohexyl which is unsubstituted or substituted by OH or -OCOR<sub>11</sub>,
- f) C<sub>7</sub>-C<sub>11</sub>phenylalkyl which is unsubstituted or substituted by OH,Cl or CH<sub>3</sub>,
- g) -CO-R<sub>12</sub> or
- h) -SO<sub>2</sub>-R<sub>13</sub>,

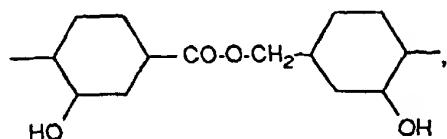
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and if n is 2, R<sub>7</sub> is

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- a) C<sub>2</sub>-C<sub>16</sub>alkylene,
- b) C<sub>4</sub>-C<sub>12</sub>alkenylene,
- c) xylene,
- d) C<sub>3</sub>-C<sub>20</sub>alkylene which is interrupted by one or more O and/or substituted by OH,
- e) a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CO-NH-R<sub>17</sub>-NH-CO- or -(CH<sub>2</sub>)<sub>m</sub>-COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub> -(in which m is 1 to 3) or

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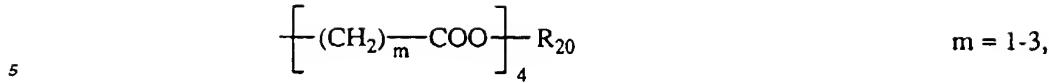
and if n is 3, R<sub>7</sub> is a group

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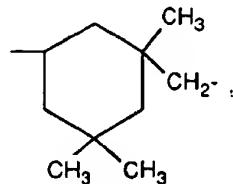


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and if n is 4, R<sub>7</sub> is a group

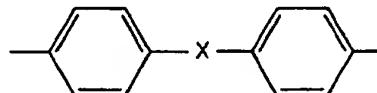


10  $R_8$  is  $C_1-C_{18}$ alkyl,  $C_3-C_{18}$ alkenyl,  $C_3-C_{20}$ alkyl which is interrupted by one or more O, N or S and/or substituted by OH,  $C_1-C_4$ alkyl which is substituted by  $-\text{P}(\text{O})(\text{OR}_{14})_2$ ,  $-\text{N}(\text{R}_9)(\text{R}_{10})$  or  $-\text{OCOR}_{11}$  and/or OH,  $C_3-C_{18}$ alkenyl, glycidyl or  $C_7-C_{11}$ phenylalkyl,  
 $R_9$  and  $R_{10}$  independently of one another are  $C_1-C_{12}$ alkyl,  $C_3-C_{12}$ alkoxyalkyl,  $C_4-C_{16}$ dialkylaminoalkyl or  $C_5-C_{12}$ cycloalkyl, or  $R_9$  and  $R_{10}$  together are  $C_3-C_9$ alkylene or  $C_3-C_9$ oxaalkylene or  $C_3-C_9$ azaalkylene,  
 $R_{11}$  is  $C_1-C_{18}$ alkyl,  $C_2-C_{18}$ alkenyl or phenyl,  
 $R_{12}$  is  $C_1-C_{18}$ alkyl,  $C_2-C_{18}$ alkenyl, phenyl,  $C_1-C_{12}$ alkoxy, phenoxy,  $C_1-C_{12}$ alkylamino or  $C_6-C_{12}$ aryl amino or a group  $-\text{R}_{24}-\text{COOH}$  or  $-\text{NH}-\text{R}_{17}-\text{NCO}$ ,  
 $R_{13}$  is  $C_1-C_{12}$ alkyl,  $C_6-C_{12}$ aryl or  $C_7-C_{14}$ alkaryl,  
 $R_{14}$  is  $C_1-C_{12}$ alkyl or phenyl,  
 $R_{15}$  is  $C_2-C_{10}$ alkylene,  $C_4-C_{50}$ alkylene which is interrupted by one or more O, phenylene or a group  $-\text{phenylene-X-phenylene-}$  in which X is  $-\text{O}-$ ,  $-\text{S}-$ ,  $-\text{SO}_2-$ ,  $-\text{CH}_2-$  or  $-\text{C}(\text{CH}_3)_2-$ ,  
 $R_{16}$  is  $C_2-C_{10}$ alkylene,  $C_2-C_{10}$ oxaalkylene or  $C_2-C_{10}$ thiaalkylene,  $C_6-C_{12}$ arylene or  $C_2-C_6$ alkenylene,  
 $R_{17}$  is  $C_2-C_{10}$ alkylene, phenylene, tolylene, diphenylenemethane or a group

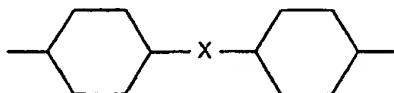


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$R_{18}$  is  $C_2-C_{10}$ alkylene or  $C_4-C_{20}$ alkylene which is interrupted by one or more O,  
 $R_{19}$  is  $C_3-C_{12}$ alkanetriyl,  
 $R_{20}$  is  $C_4-C_{12}$ alkanetetryl,  
 $R_{23}$  is  $C_{2-10}$ alkylene, phenylene or a group



or



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wherein X is O, S,  $\text{SO}_2$ ,  $\text{CH}_2$  or  $\text{C}(\text{CH}_3)_2$ , and  
 $R_{24}$  is  $C_2-C_{14}$ alkylene, vinylene or o-phenylene.

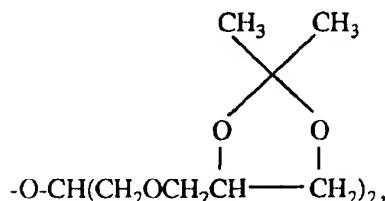
55 2. An organic material according to claim 1, wherein the triazine compound (b) is a compound of the formula I in which n is 1 to 4,  $R_1$  and  $R_2$  independently of one another are H, OH or  $C_1-C_4$ alkyl,  $R_3$  and  $R_4$  independently of one another are H, OH,  $C_1-C_4$ alkyl,  $C_1-C_4$ alkoxy, halogen or a radical  $-\text{OR}_7$ ,  $R_5$  and  $R_6$  independently of one another are H or  $C_1-C_4$ alkyl,

R<sub>7</sub>, if n is 1, is

a) C<sub>1</sub>-C<sub>18</sub>alkyl which is substituted by one or more of the groups OH, C<sub>1</sub>-C<sub>18</sub>alkoxy, allyloxy, phenoxy, furyloxy,

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-COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) and/or by -OCOR<sub>11</sub>,

b) C<sub>4</sub>-C<sub>50</sub>alkyl which is interrupted by one or more O and can be substituted by OH or/and glycidyloxy,

c) allyl, glycidyl or benzyl,

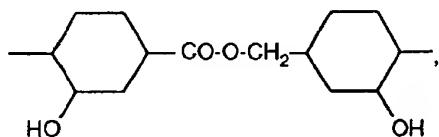
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d) cyclohexyl or hydroxycyclohexyl,

and if n is 2, R<sub>7</sub> is C<sub>4</sub>-C<sub>12</sub>alkenylene, C<sub>4</sub>-C<sub>6</sub>alkenylene, xylylene, C<sub>3</sub>-C<sub>20</sub>alkylene which is interrupted by one or more O and/or substituted by OH, or R<sub>7</sub> is a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>18</sub>O-R-CH<sub>2</sub>- or

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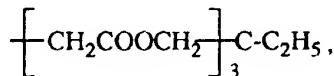
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and if n is 3, R<sub>7</sub> is a group

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and if n is 4, R<sub>7</sub> is a group

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R<sub>8</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>3</sub>-C<sub>18</sub>alkenyl, C<sub>3</sub>-C<sub>20</sub>alkyl which is interrupted by one or more O and/or substituted by OH or R<sub>8</sub> is C<sub>1</sub>-C<sub>4</sub>alkyl which is substituted by -P(O)(OR<sub>14</sub>)<sub>2</sub>,

R<sub>9</sub> and R<sub>10</sub> are C<sub>1</sub>-C<sub>6</sub>alkyl or R<sub>9</sub> and R<sub>10</sub> together are pentamethylene or 3-oxapentamethylene,

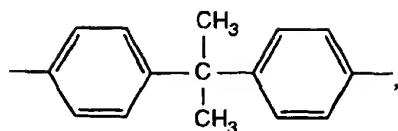
R<sub>11</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>2</sub>-C<sub>5</sub>alkenyl or phenyl,

R<sub>14</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl,

55

R<sub>15</sub> is C<sub>2</sub>-C<sub>8</sub>alkylene, C<sub>4</sub>-C<sub>50</sub>alkylene which is interrupted by one or more O, or is a group

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$R_{16}$  is  $C_2$ - $C_8$ alkylene,  $C_2$ - $C_6$ oxaalkylene or  $C_2$ - $C_6$ thiaalkylene and  $R_{18}$  is  $C_4$ - $C_8$ alkylene or  $C_4$ - $C_{12}$ alkylene which is interrupted by one or more O.

10

3. An organic material according to claim 1, wherein the triazine compound (b) is a compound of the formula I in which n is 1, 2 or 4,  $R_1$  and  $R_2$  independently of one another are H or  $CH_3$ ,  $R_3$  and  $R_4$  independently of one another are H,  $CH_3$  or Cl,  $R_5$  and  $R_6$  are hydrogen,

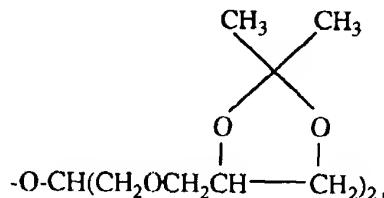
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$R_7$ , if n is 1, is

a)  $C_1$ - $C_{14}$ alkyl which is substituted by one or more of the groups OH,  $C_1$ - $C_{15}$ alkoxy, allyloxy, phenoxy, furyloxy,

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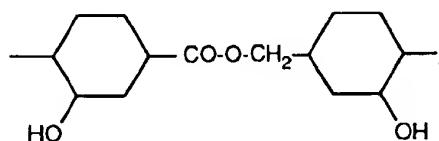
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b)  $C_6$ - $C_{45}$ alkyl which is interrupted by one or more O and can be substituted by OH or/and glycidyloxy,  
c) glycidyl or  
d) hydroxycyclohexyl,

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and if n is 2,  $R_7$  is  $C_6$ - $C_{12}$ alkenylene, 2-butenylene-1,4, xylylene,  $C_3$ - $C_{20}$ alkylene which is interrupted by one or more O or substituted by OH, or  $R_7$  is a group  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ ,  $-CO-R_{16}-CO-$ ,  $-CH_2-COO-R_{10}-OOC-CH_2-$  or

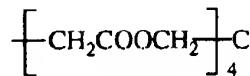
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and if n is 4,  $R_7$  is

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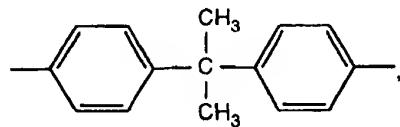


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$R_8$  is  $C_4$ - $C_{10}$ alkyl, oleyl,  $C_3$ - $C_{20}$ alkyl which is interrupted by one or more O and/or substituted by OH, or  $R_8$  is  $-CH_2P(O)(OR_{14})_2$ ,  
 $R_9$  and  $R_{10}$  are  $C_2$ - $C_6$ alkyl  
 $R_{11}$  is  $C_6$ - $C_{10}$ alkyl,  $C_2$ - $C_3$ alkenyl

$R_{14}$  is  $C_1$ - $C_{12}$ alkyl, $R_{15}$  is  $C_2$ - $C_8$ alkylene,  $C_{10}$ - $C_{45}$ alkylene which is interrupted by more than one 0, or is a group

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 $R_{16}$  is  $C_4$ - $C_8$ alkylene and  $R_{18}$  is  $C_4$ - $C_8$ alkylene.

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4. An organic material according to claim 1, wherein the component (b) is a compound of the formula I in which n is 1 or 2 and, if n is 1,  $R_7$  is a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>-OR<sub>21</sub> in which R<sub>21</sub> is  $C_1$ - $C_{18}$ alkyl, allyl, phenyl, furyl,  $C_6$ - $C_{12}$ alkanoyl or  $C_3$ - $C_6$ alkenoyl and, if n is 2,  $R_7$  is a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>- in which R<sub>15</sub> is as defined in claim 1.

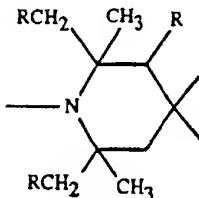
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5. An organic material according to claim 1, wherein the component (b) is a compound of the formula I in which R<sub>1</sub> and R<sub>2</sub> are hydrogen or methyl, R<sub>3</sub> and R<sub>4</sub> are hydrogen, chlorine or methyl and R<sub>5</sub> and R<sub>6</sub> are hydrogen.

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6. An organic material according to claim 1, wherein the component (a) is a compound containing at least one group of the formula

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in which R is hydrogen or methyl.

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7. An organic material according to claim 6, wherein R is hydrogen.

8. An organic material according to claim 6, wherein the component (a) is one of the following compounds:

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Di-(2,2,6,6-tetramethylpiperidin-4-yl) succinate,  
Di-(2,2,6,6-tetramethylpiperidin-4-yl) sebacate,  
Di-(1,2,2,6,6-pentamethylpiperidin-4-yl) sebacate,  
Di-(1,2,2,6,6-pentamethylpiperidin-4-yl) butyl-(3,5-di-tert-butyl-4-hydroxybenzyl)-malonate,  
Di-(1-octyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate,

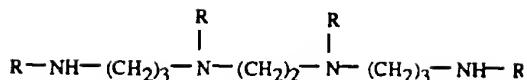
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Tetra-(2,2,6,6-tetramethylpiperidin-4-yl) butane-1,2,3,4-tetracarboxylate,  
Tetra-(1,2,2,6,6-pentamethylpiperidin-4-yl) butane-1,2,3,4-tetracarboxylate,  
N-(2,2,6,6-Tetramethylpiperidin-4-yl)- $\beta$ -aminopropionic acid dodecyl ester,  
N-(1-Octyloxy-2,2,6,6-tetramethylpiperidin-4-yl)-N'-dodecyl-oxalamide

N-(2,2,6,6-Tetramethylpiperidin-4-yl)- $\alpha$ -dodecylsuccinimide,  
2,2,4,4-Tetramethyl-7-oxa-3,20-diaza-21-oxo-dispiro[5.1.11.2]heneicosane,  
8-Acetyl-3-dodecyl-1,3,8-triaza-7,7,9,9-tetramethylspiro[4.5]decane-2,4-dione,  
20-(Dodecyloxycarbonylethyl)-2,2,4,4-tetramethyl-7-oxa-3,20-diaza-21-oxo-dispiro[5.1.11.2]heneicosane,

or a compound of the formulae

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in which

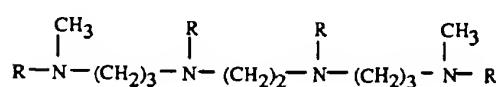
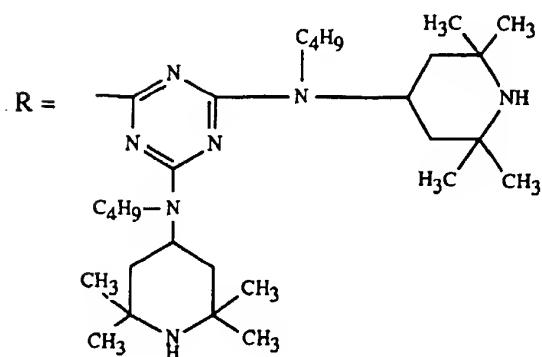
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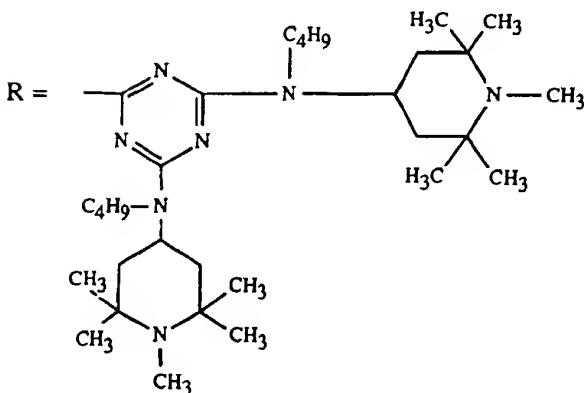
in which

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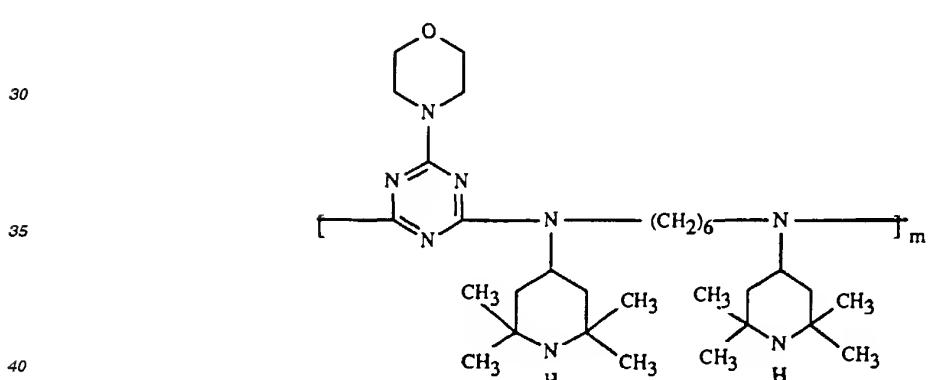
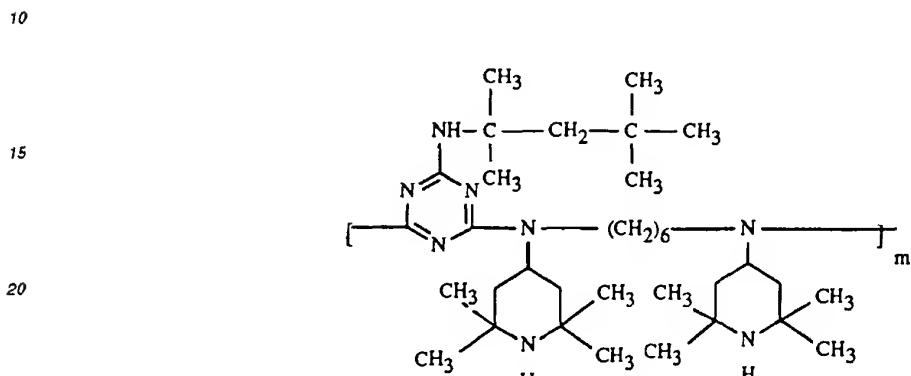
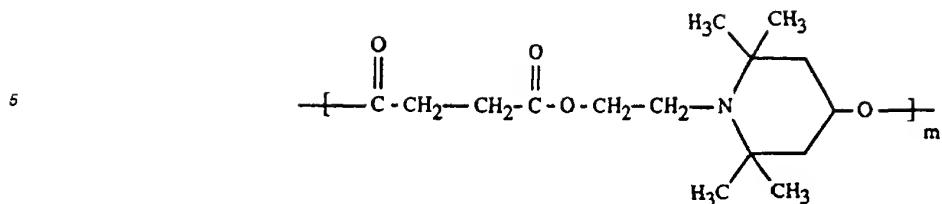
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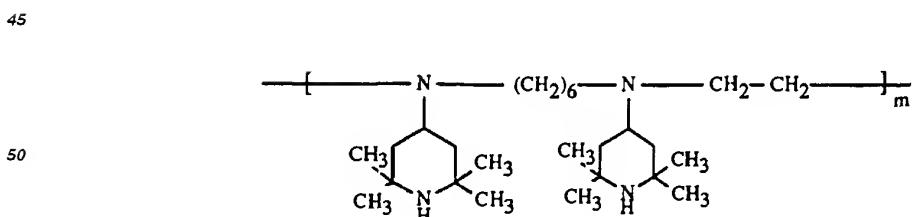
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or



55 9. An organic material according to claim 1, which contains 0.01 to 5% by weight of the component (a) and 0.02 to 5% by weight of the component (b), relative to the material.

10. An organic material according to claim 9, which contains 0.02 to 2% by weight of the component (a) and 0.05 to

3% by weight of the component (b).

11. An organic material according to claim 1, wherein the material is an organic polymer.

5 12. An organic polymer according to claim 11, which, in addition to the components (a) and (b) also contains further stabilizers, fillers, reinforcing agents, pigments, dyes, plasticizers, solvents, lubricants, flow-control agents, fluorescent brighteners, nucleating agents, antistatic agents or fire-retarding agents.

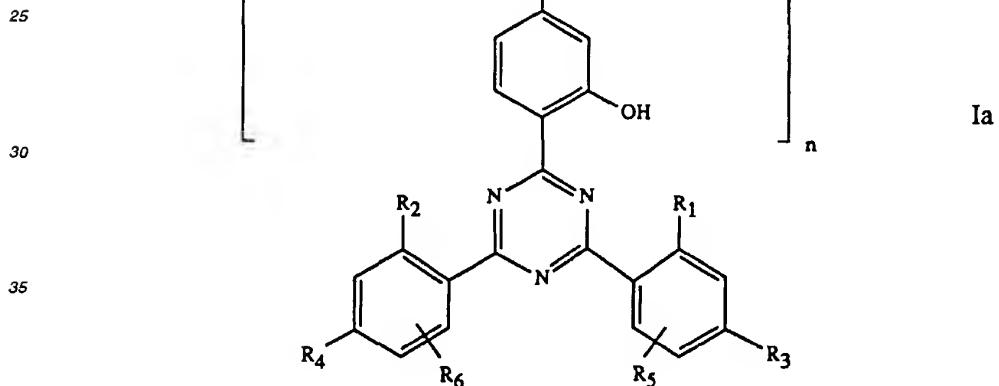
10 13. An organic polymer according to claim 11, wherein the polymer is a coating binder.

14. An organic material according to claim 1, wherein the material is a radiation-curable coating material.

15 15. A radiation-curable coating material containing a hydroxyphenyltriazin of formula I as defined in claim 1 in the absence of a sterically hindered amine.

16. A process for stabilizing organic material against damage caused by light, heat and oxygen by the addition of the components (a) and (b) as defined in claim 1.

20 17. A compound of the formula Ia



in which n is 1 to 4,

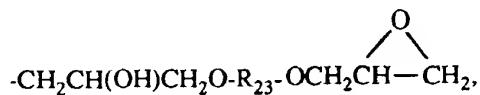
R<sub>1</sub> and R<sub>2</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl or trifluoromethyl,  
 R<sub>3</sub> and R<sub>4</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen and, in  
 the event that n = 1, can also be a radical -OR<sub>7</sub>,  
 R<sub>5</sub> and R<sub>6</sub> independently of one another are H, C<sub>1</sub>-C<sub>12</sub>alkyl or halogen,  
 R<sub>7</sub>, if n is 1, is

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a) C<sub>1</sub>-C<sub>12</sub>alkyl which is substituted by phenoxy (which is unsubstituted or substituted by C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen) or by a group -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) or -O-CO-R<sub>22</sub>,  
 b) C<sub>4</sub>-C<sub>50</sub>alkyl which is interrupted by more than one O and can be substituted by OH or/and glycidyloxy,  
 c) glycidyl or a group

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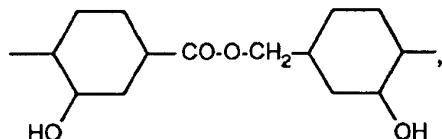
- d) cyclohexyl substituted by OH or  $-\text{OCOR}_{11}$
- e) a group  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OR}_{21}$
- f) a group  $-\text{SO}_2\text{-R}_{13}$ ,
- g) a group  $-\text{CO-R}_{12}$

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and if  $n$  is 2,  $R_7$  is

- a)  $C_2$ - $C_{12}$ alkylene,
- b)  $C_4$ - $C_{12}$ alkenylene,
- c) xylylene,
- d)  $C_3$ - $C_{20}$ alkylene which is interrupted by one or more O and/or substituted by OH,
- e) a group  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ ,  $-(CH_2)_m-COO-R_{18}-OOC-(CH_2)_m-$  (wherein m is 1-3) or

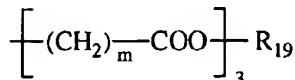
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and if  $n$  is 3,  $R_7$  is a group

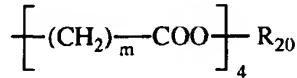
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(wherein  $m$  is 1-3),  
and if  $n$  is 4,  $R_7$  is a group

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(wherein m is 1-3),

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R<sub>8</sub> is C<sub>3</sub>-C<sub>20</sub>alkyl which is interrupted by one or more O, N or S and can be substituted by OH, or R<sub>8</sub> is C<sub>1</sub>-C<sub>4</sub>alkyl which is substituted by -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>), or -OCOR<sub>11</sub>, or R<sub>8</sub> is C<sub>3</sub>-C<sub>18</sub>alkenyl, glycidyl or C<sub>7</sub>-C<sub>11</sub>phenylalkyl,

R<sub>9</sub> and R<sub>10</sub> independently are C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>3</sub>-C<sub>12</sub>alkoxyalkyl, C<sub>4</sub>-C<sub>16</sub> dialkylaminoalkyl or C<sub>5</sub>-C<sub>12</sub>cycloalkyl, or R<sub>9</sub> and R<sub>10</sub> together are C<sub>3</sub>-C<sub>9</sub>alkylene or C<sub>3</sub>-C<sub>9</sub>-oxaalkylene or C<sub>3</sub>-C<sub>9</sub>azaalkylene,

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$R_{11}$  is  $C_1$ - $C_{18}$ alkyl,  $C_2$ - $C_{18}$ alkenyl or phenyl,

$R_{12}$  is a group  $-R_{24}-COOH$  or  $-NH-R_{17}-NCO$ ,

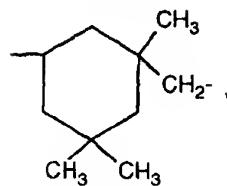
R<sub>13</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>6</sub>-C<sub>12</sub>aryl

$R_{15}$  is  $C_1-C_{12}$ alkyl or phenyl,  $R_{16}$  is  $C_2-C_{12}$ alkylene,  $C_4-C_5$ alkylene which is interrupted by one or more 0, or  $R_{15}$  is phenylene or a group

-phenylene-X-phenylene in which X is -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- or -C(CH<sub>3</sub>)<sub>2</sub>-.

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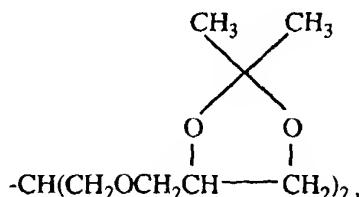


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$R_{18}$  is  $C_2$ - $C_{10}$ alkylene or  $C_4$ - $C_{20}$ alkylene which is interrupted by one or more O,  
 $R_{19}$  is  $C_3$ - $C_{12}$ alkanetriyl,  
 $R_{20}$  is  $C_4$ - $C_{12}$ alkanetetryl,  
 $R_{21}$  is  $C_1$ - $C_{18}$ alkyl,  $C_3$ - $C_{18}$ alkenyl, phenyl, phenyl substituted by  $C_1$ - $C_{12}$ alkyl,  $C_1$ - $C_{12}$ alkoxy or halogen, or  $R_{21}$  is  $C_2$ - $C_{19}$ alkanoyl, benzoyl,  $C_3$ - $C_{18}$ alkenoyl, furyl or a group

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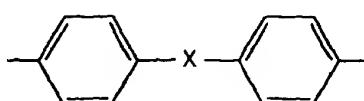
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$R_{22}$  is  $C_2$ - $C_5$ alkenyl,  
 $R_{23}$  is  $C_2$ - $C_{10}$ alkylene, phenylene or a group

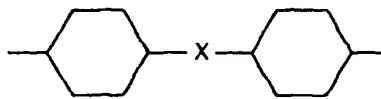
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or

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wherein X is O, S,  $SO_2$ ,  $CH_2$  or  $C(CH_3)_2$ , and  
 $R_{24}$  is  $C_2$ - $C_{14}$ alkylene, vinylene or o-phenylene.

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18. A compound of the formula Ia according to claim 17,  
in which n is 1 or 2,

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$R_1$  and  $R_2$  independently of one another are H, OH,  $C_1$ - $C_{12}$ alkyl or halogenomethyl,  
 $R_3$  and  $R_4$  independently of one another are H, OH,  $C_1$ - $C_{12}$ alkyl,  $C_1$ - $C_{18}$ alkoxy or halogen and, in the event that n = 1, can also be a radical  $-OR_7$ ,  
 $R_5$  and  $R_6$  independently of one another are H,  $C_1$ - $C_{12}$ alkyl or halogen,  
 $R_7$  is  $C_1$ - $C_{12}$ alkyl which is substituted by phenoxy which is unsubstituted or substituted by  $C_1$ - $C_{18}$ alkyl,  $C_1$ - $C_{18}$ alkoxy or halogen,  $C_1$ - $C_{12}$ alkyl which is substituted by  $-COOR_8$ ,  $-CONH_2$ ,  $-CONHR_9$ ,  $-CON(R_9)(R_{10})$ ,  $-NH_2$ ,  $-NHR_9$  or  $-N(R_9)(R_{10})$ ,  $C_6$ - $C_{20}$ alkyl which is interrupted by more than one O and is substituted by OH, glycidyl, cyclohexyl substituted by OH or  $-OCOR_{11}$ , a group  $-CH_2CH(OH)CH_2OR_{21}$  or  $SO_2R_{13}$ , if n is 1, and, if n is 2, is  $C_2$ - $C_{12}$ alkylene,  $C_4$ - $C_{12}$ alkenylene, xylylene,  $C_3$ - $C_{20}$ alkylene which is interrupted by O and/or substituted by OH, or a group  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$  or  $-(CH_2)_m-COO-R_{18}-OOC-(CH_2)_m-$  in which m

is 1-3,

R<sub>8</sub> is C<sub>3</sub>-C<sub>20</sub>alkyl which is interrupted by O, N or S and/or substituted by OH, C<sub>1</sub>-C<sub>4</sub>alkyl which is substituted by -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) or -OCOR<sub>11</sub>, C<sub>3</sub>-C<sub>18</sub>alkenyl, glycidyl or C<sub>7</sub>-C<sub>11</sub>phenylalkyl,

R<sub>9</sub> and R<sub>10</sub> independently of one another are C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>3</sub>-C<sub>12</sub>alkoxyalkyl, C<sub>4</sub>-C<sub>16</sub>dialkylaminoalkyl or C<sub>5</sub>-C<sub>12</sub>cycloalkyl, or R<sub>9</sub> and R<sub>10</sub> together are C<sub>3</sub>-C<sub>9</sub>alkylene or C<sub>3</sub>-C<sub>9</sub>oxaalkylene or C<sub>3</sub>-C<sub>9</sub>azaalkylene,

R<sub>11</sub> is C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>2</sub>-C<sub>16</sub>alkenyl or phenyl,

R<sub>13</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>6</sub>-C<sub>12</sub>aryl or C<sub>7</sub>-C<sub>14</sub>alkaryl,

R<sub>14</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl or phenyl,

R<sub>15</sub> is C<sub>2</sub>-C<sub>10</sub>alkylene, phenylene or a group -phenylene-X-phenylene in which X is -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- or -C(CH<sub>3</sub>)<sub>2</sub>,

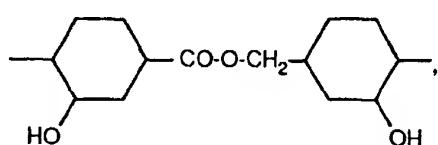
R<sub>18</sub> is C<sub>2</sub>-C<sub>10</sub>alkylene or C<sub>4</sub>-C<sub>20</sub>alkylene which is interrupted by O, and

R<sub>21</sub> is C<sub>1</sub>-C<sub>18</sub>alkyl, phenyl, phenyl which is substituted by C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>1</sub>-C<sub>12</sub>alkoxy or halogen, C<sub>2</sub>-C<sub>12</sub>alkanoyl, benzoyl or C<sub>3</sub>-C<sub>5</sub>alkenoyl.

15 19. A compound according to claim 17 of the formula Ia in which n is 1 to 4, R<sub>1</sub> and R<sub>2</sub> independently of one another are H, OH or C<sub>1</sub>-C<sub>4</sub>alkyl, R<sub>3</sub> and R<sub>4</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>alkoxy, halogen or a radical -OR<sub>7</sub>, R<sub>5</sub> and R<sub>6</sub> independently of one another are H or C<sub>1</sub>-C<sub>4</sub>alkyl,

20 R<sub>7</sub>, if n is 1, is C<sub>1</sub>-C<sub>6</sub>alkyl which is substituted by -COOR<sub>8</sub>, -COONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) or -OCOR<sub>22</sub>, or R<sub>7</sub> is glycidyl, hydroxycyclohexyl or a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub>, and if n is 2, R<sub>7</sub> is C<sub>4</sub>-C<sub>12</sub>alkylene, C<sub>4</sub>-C<sub>6</sub>alkenylene, xylylene, C<sub>3</sub>-C<sub>20</sub>alkylene which is interrupted by one or more O and/or substituted by OH, or R<sub>7</sub> is a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOCCH<sub>2</sub>- or

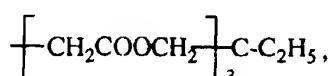
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and if n is 3, R<sub>7</sub> is a group

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and if n is 4, R<sub>7</sub> is a group

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R<sub>8</sub> is C<sub>3</sub>-C<sub>20</sub>alkyl which is interrupted by one or more O and can be substituted by OH or R<sub>8</sub> is C<sub>1</sub>-C<sub>4</sub>alkyl which is substituted by -P(O)(OR<sub>14</sub>)<sub>2</sub> or R<sub>8</sub> is C<sub>3</sub>-C<sub>18</sub>alkenyl,

50 R<sub>9</sub> and R<sub>10</sub> independently are C<sub>1</sub>-C<sub>8</sub>alkyl or cyclohexyl or R<sub>9</sub> and R<sub>10</sub> together are pentamethylene or 3-oxa-pentamethylene,

R<sub>14</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl,

R<sub>15</sub> is C<sub>2</sub>-C<sub>8</sub>alkylene, C<sub>4</sub>-C<sub>50</sub>alkylene which is interrupted by one or more O, or R<sub>15</sub> is a group -phenylene-X-phenylene- in which X is -O-, -CH<sub>2</sub>- or -C(CH<sub>3</sub>)<sub>2</sub>-,

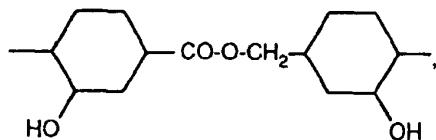
R<sub>18</sub> is C<sub>4</sub>-C<sub>8</sub>alkylene or C<sub>4</sub>-C<sub>12</sub>alkylene which is interrupted by one or more O,

55 R<sub>21</sub> is C<sub>4</sub>-C<sub>18</sub>alkyl, allyl, phenyl, furyl, C<sub>5</sub>-C<sub>19</sub>alkanoyl or C<sub>3</sub>-C<sub>5</sub>alkenoyl and R<sub>22</sub> is C<sub>2</sub>-C<sub>5</sub>alkenyl.

20. A compound according to claim 17 of the formula Ia in which n is 1, 2 or 4, R<sub>1</sub> and R<sub>2</sub> independently of one another are H or CH<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub> independently of one another are H, CH<sub>3</sub> or Cl, R<sub>5</sub> and R<sub>6</sub> are hydrogen,

5  $R_7$ , if  $n$  is 1, is  $C_1$ - $C_4$ alkyl which is substituted by  $-COOR_8$ ,  $-CON(R_9)(R_{10})$  or  $-O-COR_{22}$ , or  $R_7$  is glycidyl, 2-hydroxycyclohexyl or a group  $-CH_2CH(OH)CH_2OR_{21}$ , and if  $n$  is 2,  $R_7$  is  $C_6$ - $C_{12}$ alkylene, 2-butene-1,4-ylene, xylylene or  $C_3$ - $C_{20}$ alkylene which is interrupted by one or more O and/or substituted by OH, or  $R_7$  is a group  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ ,  $-CH_2-COO-R_{18}-OOCCH_2-$  or

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and if  $n$  is 4,  $R_7$  is a group

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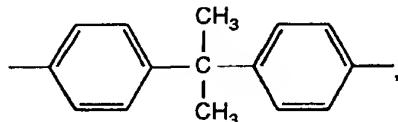
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$R_8$  is  $C_3$ - $C_{20}$ alkyl which is interrupted by one or more O and can be substituted by OH or  $R_8$  is  $-CH_2P(O)(OR_{14})_2$  or oleyl

$R_9$  and  $R_{10}$  are  $C_2$ - $C_6$ alkyl

$R_{15}$  is  $C_2$ - $C_8$ alkylene,  $C_{10}$ - $C_{45}$ alkylene which is interrupted by one or more O or is a group

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$R_{18}$  is  $C_4$ - $C_8$ alkylene,

$R_{21}$  is  $C_4$ - $C_{15}$ alkyl, allyl, phenyl, furyl,  $C_5$ - $C_{12}$ alkanoyl or  $C_3$ - $C_5$ alkenoyl and  $R_{22}$  is  $C_2$ - $C_3$ alkenyl.

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21. A compound according to claim 17 of the formula Ia in which  $n$  is 2.

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22. A process for stabilizing organic material, in particular organic polymers, against damage caused by light, heat and oxygen, by the addition of an o-hydroxyphenyl triazine, which comprises adding at least one compound of the formula Ia according to claim 17.

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23. An organic material containing at least one compound of the formula Ia according to claim 17 as a stabilizer against damage caused by light, heat and oxygen.

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24. An organic polymer as a material according to claim 23.

25. An organic material according to claim 23, containing 0.01 to 10 % by weight of a compound of the formula Ia, relative to the material.

26. A polycarbonate according to claim 24.

27. An organic material according to claim 23 which is a radiation-curable coating material.

28. The use of the compounds of claim 17 of the formula Ia as a stabilizer for organic materials, in particular for organic polymers.

29. Use according to claim 28 as a stabilizer for polycarbonates.

30. The use of the compounds of claim 17 of the formula Ia as stabilizer for radiation-curable coating material.

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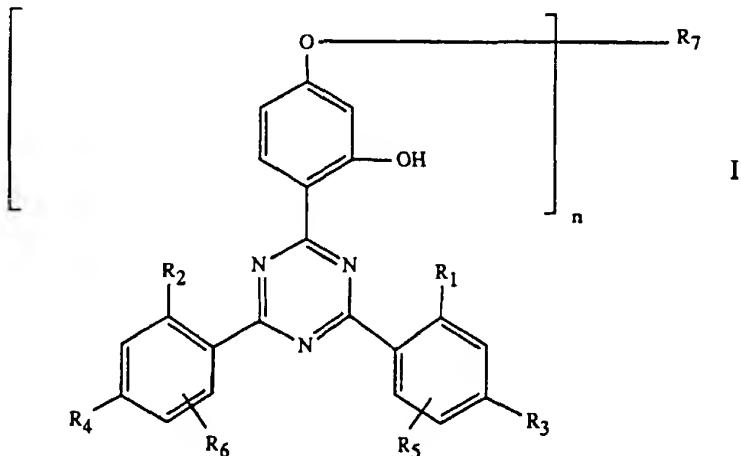
**Claims for the following Contracting State : ES**

1. An organic material which has been stabilized against damage caused by light, heat and oxygen and which contains

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- (a) 0.01 to 5 % by weight of at least one sterically hindered amine of the polyalkylpiperidine type and
- (b) 0.02 to 5 % by weight of at least one o-hydroxyphenyl-s-triazine, wherein the triazine compound (b) is a compound of the formula I

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35 in which n is 1 to 4,

R<sub>1</sub> and R<sub>2</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl or trifluoromethyl,  
R<sub>3</sub> and R<sub>4</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl, C<sub>1</sub>-C<sub>18</sub>-alkoxy or halogen

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and, in the event that n = 1, can also be a radical -OR<sub>7</sub>,

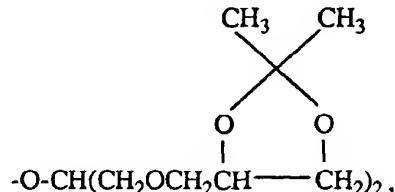
R<sub>5</sub> and R<sub>6</sub> independently of one another are H, C<sub>1</sub>-C<sub>12</sub>alkyl, or halogen,

R<sub>7</sub>, if n is 1, is

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a) C<sub>1</sub>-C<sub>18</sub>alkyl which is substituted by one or more of the groups OH, C<sub>1</sub>-C<sub>18</sub>alkoxy, C<sub>3</sub>-C<sub>18</sub>alkenoxy, halogen, phenoxy (which is unsubstituted or substituted by C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen), furyloxy,

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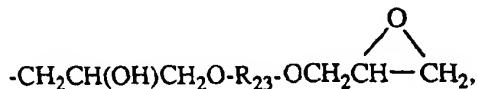


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-COOH, -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>), -NHCOR<sub>11</sub>, -CN and/or by -O-CO-R<sub>11</sub>,

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 b)  $C_4$ - $C_{50}$ alkyl which is interrupted by one or more O and can be substituted by OH or/and glycidyloxy,  
 c)  $C_3$ - $C_6$ alkenyl,  
 d) glycidyl or a group

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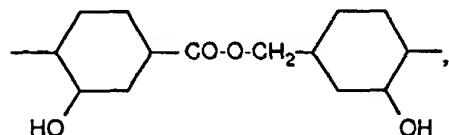
e) cyclohexyl which is unsubstituted or substituted by OH or  $-OCOR_{11}$ ,  
 f)  $C_7$ - $C_{11}$ phenylalkyl which is unsubstituted or substituted by OH Cl or  $CH_3$ ,  
 g)  $-CO-R_{12}$  or  
 h)  $-SO_2-R_{13}$ ,

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and if n is 2,  $R_7$  is

a)  $C_2$ - $C_{18}$ alkylene,  
 b)  $C_4$ - $C_{12}$ alkenylene,  
 c) xylylene,  
 d)  $C_3$ - $C_{20}$ alkylene which is interrupted by one or more O and/or substituted by OH,  
 e) a group  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ ,  $-CO-R_{16}-CO-$ ,  $-CO-NH-R_{17}-NH-CO-$  or  $-(CH_2)_m-COO-R_{18}-OOC-(CH_2)_m-$  (in which m is 1 to 3) or

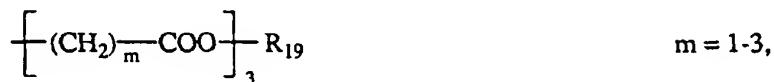
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and if n is 3,  $R_7$  is a group

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and if n is 4,  $R_7$  is a group

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$R_8$  is  $C_1$ - $C_{18}$ alkyl,  $C_3$ - $C_{18}$ alkenyl,  $C_3$ - $C_{20}$ alkyl which is interrupted by one or more O, N or S and/or substituted by OH,  $C_1$ - $C_4$ alkyl which is substituted by  $-P(O)(OR_{14})_2$ ,  $-N(R_9)(R_{10})$  or  $-OCOR_{11}$  and/or OH,  $C_3$ - $C_{18}$ alkenyl, glycidyl or  $C_7$ - $C_{11}$ phenylalkyl,

$R_9$  and  $R_{10}$  independently of one another are  $C_1$ - $C_{12}$ alkyl,  $C_3$ - $C_{12}$ alkoxyalkyl,  $C_4$ - $C_{16}$ dialkylaminoalkyl or  $C_5$ - $C_{12}$ cycloalkyl, or  $R_9$  and  $R_{10}$  together are  $C_3$ - $C_9$ alkylene or  $C_3$ - $C_9$ oxaalkylene or  $C_3$ - $C_9$ azaalkylene,

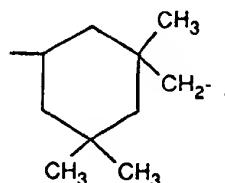
$R_{11}$  is  $C_1$ - $C_{18}$ alkyl,  $C_2$ - $C_{18}$ alkenyl or phenyl,

$R_{12}$  is  $C_1$ - $C_{18}$ alkyl,  $C_2$ - $C_{18}$ alkenyl, phenyl,  $C_1$ - $C_{12}$ alkoxy, phenoxy,  $C_1$ - $C_{12}$ alkylamino or  $C_6$ - $C_{12}$ arylamino or a group  $-R_{24}-COOH$  or  $-NH-R_{17}-NCO$ ,

$R_{13}$  is  $C_1$ - $C_{12}$ alkyl,  $C_6$ - $C_{12}$ aryl or  $C_7$ - $C_{14}$ alkaryl,

5       $R_{14}$  is  $C_1$ - $C_{12}$ alkyl or phenyl,  
 $R_{15}$  is  $C_2$ - $C_{10}$ alkylene,  $C_4$ - $C_{50}$ alkylene which is interrupted by one or more O, phenylene or a group -phenylene-X-phenylene- in which X is -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- or -C(CH<sub>3</sub>)<sub>2</sub>-,  
 $R_{16}$  is  $C_2$ - $C_{10}$ alkylene,  $C_2$ - $C_{10}$ oxaalkylene or  $C_2$ - $C_{10}$ thiaalkylene,  $C_6$ - $C_{12}$ arylene or  $C_2$ - $C_6$ alkenylene,  
 $R_{17}$  is  $C_2$ - $C_{10}$ alkylene, phenylene, tolylene, diphenylenemethane or a group

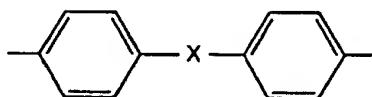
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$R_{18}$  is  $C_2$ - $C_{10}$ alkylene or  $C_4$ - $C_{20}$ alkylene which is interrupted by one or more O,  
 $R_{19}$  is  $C_3$ - $C_{12}$ alkanetriyl,  
 $R_{20}$  is  $C_4$ - $C_{12}$ alkanetetryl,  
 $R_{23}$  is  $C_2$ - $C_{10}$ alkylene, phenylene or a group

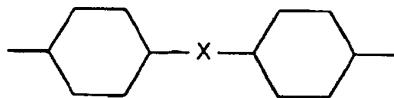
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or

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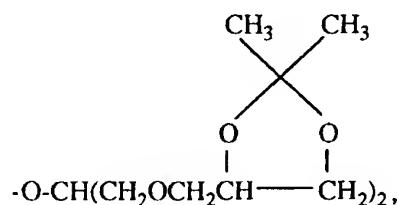
wherein X is O, S, SO<sub>2</sub>, CH<sub>2</sub> or C(CH<sub>3</sub>)<sub>2</sub>, and  
 $R_{24}$  is  $C_2$ - $C_{14}$ alkylene, vinylene or o-phenylene.

40      2. An organic material according to claim 1, wherein the triazine compound (b) is a compound of the formula I in which n is 1, 2 or 4, R<sub>1</sub> and R<sub>2</sub> independently of one another are H or CH<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub> independently of one another are H, CH<sub>3</sub> or Cl, R<sub>5</sub> and R<sub>6</sub> are hydrogen,

45      R<sub>7</sub>, if n is 1, is

a)  $C_1$ - $C_{14}$ alkyl which is substituted by one or more of the groups OH,  $C_1$ - $C_{15}$ alkoxy, allyloxy, phenoxy, furyloxy.

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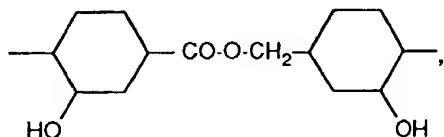
-COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) and/or by -OCOR<sub>11</sub>.

b)  $C_6$ - $C_{45}$ alkyl which is interrupted by one or more O and can be substituted by OH or/and glycidyloxy,

c) glycidyl or  
d) hydroxycyclohexyl,

5 and if n is 2, R<sub>7</sub> is C<sub>6</sub>-C<sub>12</sub>alkenylene, 2-butylene-1,4, xylylene, C<sub>3</sub>-C<sub>20</sub>alkylene which is interrupted by one or more O or substituted by OH, or R<sub>7</sub> is a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOC-CH<sub>2</sub>-or

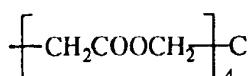
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and if n is 4, R<sub>7</sub> is

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R<sub>8</sub> is C<sub>4</sub>-C<sub>10</sub>alkyl, oleyl, C<sub>3</sub>-C<sub>20</sub>alkyl which is interrupted by one or more O and/or substituted by OH, or R<sub>8</sub> is -CH<sub>2</sub>P(O)(OR<sub>14</sub>)<sub>2</sub>,

R<sub>9</sub> and R<sub>10</sub> are C<sub>2</sub>-C<sub>6</sub>alkyl

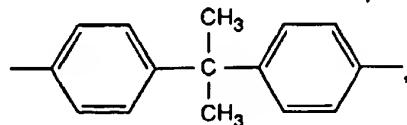
R<sub>11</sub> is C<sub>6</sub>-C<sub>10</sub>alkyl, C<sub>2</sub>-C<sub>3</sub>alkenyl

R<sub>14</sub> is C<sub>1</sub>-C<sub>4</sub>alkyl,

R<sub>15</sub> is C<sub>2</sub>-C<sub>8</sub>alkylene, C<sub>10</sub>-C<sub>45</sub>alkylene which is interrupted by more than one O, or is a group

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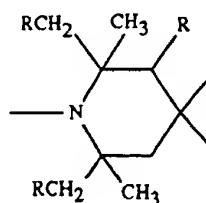
R<sub>16</sub> is C<sub>4</sub>-C<sub>8</sub>alkylene and R<sub>18</sub> is C<sub>4</sub>-C<sub>8</sub>alkylene.

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3. An organic material according to claim 1, wherein the component (a) is a compound containing at least one group of the formula

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in which R is hydrogen or methyl, preferably wherein R is hydrogen.

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4. An organic material according to claim 1, wherein the material is an organic polymer.

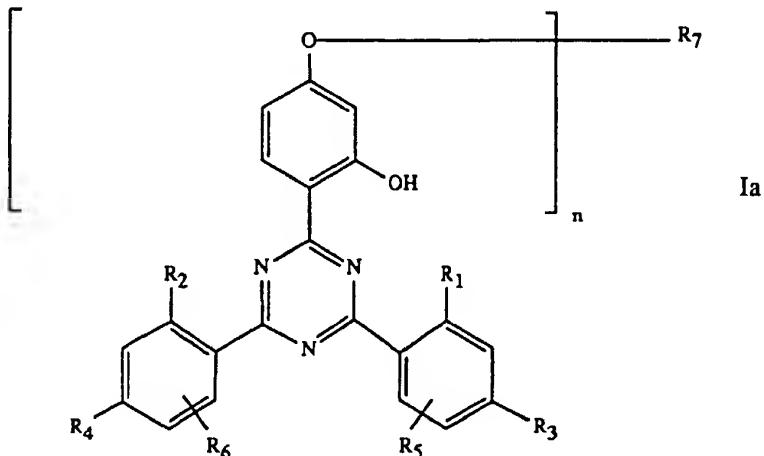
5. An organic polymer according to claim 4, wherein the polymer is a coating binder.

6. An organic material according to claim 1, wherein the material is a radiation-curable coating material.

7. A radiation-curable coating material containing a hydroxyphenyltriazin of formula I as defined in claim 1 in the absence of a sterically hindered amine.

5 8. An organic material which has been stabilized against damage caused by light, heat and oxygen containing 0.01 to 10 % by weight of at least one compound of the formula Ia

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in which n is 1 to 4,

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R<sub>1</sub> and R<sub>2</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl or trifluoromethyl,  
 R<sub>3</sub> and R<sub>4</sub> independently of one another are H, OH, C<sub>1</sub>-C<sub>12</sub>alkyl, cyclohexyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen and, in  
 the event that n = 1, can also be a radical -OR<sub>7</sub>,

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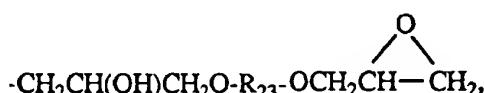
R<sub>5</sub> and R<sub>6</sub> independently of one another are H, C<sub>1</sub>-C<sub>12</sub>alkyl or halogen,  
 R<sub>7</sub>, if n is 1, is

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a) C<sub>1</sub>-C<sub>12</sub>alkyl which is substituted by phenoxy (which is unsubstituted or substituted by C<sub>1</sub>-C<sub>18</sub>alkyl, C<sub>1</sub>-C<sub>18</sub>alkoxy or halogen) or by a group -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) or -O-CO-R<sub>22</sub>,

b) C<sub>4</sub>-C<sub>50</sub>alkyl which is interrupted by more than one O and can be substituted by OH or/and glycidyloxy,  
 c) glycidyl or a group

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d) cyclohexyl substituted by OH or -OCOR<sub>11</sub>  
 e) a group -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub>  
 f) a group -SO<sub>2</sub>R<sub>13</sub>,  
 g) a group -CO-R<sub>12</sub>

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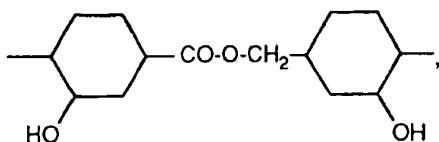
and if n is 2, R<sub>7</sub> is

a) C<sub>2</sub>-C<sub>12</sub>alkylene,  
 b) C<sub>4</sub>-C<sub>12</sub>alkenylene,  
 c) xylene,

d)  $C_3$ - $C_{20}$ alkylene which is interrupted by one or more O and/or substituted by OH,  
 e) a group  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-\text{R}_{15}\text{OCH}_2\text{CH}(\text{OH})\text{CH}_2-$ ,  $-(\text{CH}_2)_m\text{COO}-\text{R}_{18}\text{OOC}-(\text{CH}_2)_m-$  (wherein m is 1-3) or

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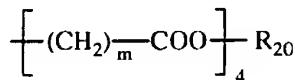
and if n is 3,  $\text{R}_7$  is a group

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(wherein m is 1-3), and if n is 4,  $\text{R}_7$  is a group

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(wherein m is 1-3),

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$\text{R}_8$  is  $C_3$ - $C_{20}$ alkyl which is interrupted by one or more O, N or S and can be substituted by OH, or  $\text{R}_8$  is  $C_1$ - $C_4$ alkyl which is substituted by  $-\text{P}(\text{O})(\text{OR}_{14})_2$ ,  $-\text{N}(\text{R}_9)(\text{R}_{10})$ , or  $-\text{OCOR}_{11}$ , or  $\text{R}_8$  is  $C_3$ - $C_{18}$ alkenyl, glycidyl or  $C_7$ - $C_{11}$ phenylalkyl,

$\text{R}_9$  and  $\text{R}_{10}$  independently are  $C_1$ - $C_{12}$ alkyl,  $C_3$ - $C_{12}$ alkoxyalkyl,  $C_4$ - $C_{16}$ dialkylaminoalkyl or  $C_5$ - $C_{12}$ cycloalkyl, or  $\text{R}_9$  and  $\text{R}_{10}$  together are  $C_3$ - $C_9$ alkylene or  $C_3$ - $C_9$ -oxaalkylene or  $C_3$ - $C_9$ azaalkylene,

$\text{R}_{11}$  is  $C_1$ - $C_{18}$ alkyl,  $C_2$ - $C_{18}$ alkenyl or phenyl,

$\text{R}_{12}$  is a group  $-\text{R}_{24}\text{COOH}$  or  $-\text{NH}-\text{R}_{17}\text{NCO}$ ,

$\text{R}_{13}$  is  $C_1$ - $C_{12}$ alkyl,  $C_6$ - $C_{12}$ aryl or  $C_7$ - $C_{14}$ alkaryl

$\text{R}_{14}$  is  $C_1$ - $C_{12}$ alkyl or phenyl

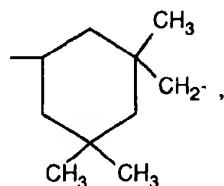
$\text{R}_{15}$  is  $C_2$ - $C_{10}$ alkylene,  $C_4$ - $C_{50}$ alkylene which is interrupted by one or more O, or  $\text{R}_{15}$  is phenylene or a group  $-\text{phenylene-X-phenylene}$  in which X is  $-\text{O}-$ ,  $-\text{S}-$ ,  $-\text{SO}_2-$ ,  $-\text{CH}_2-$  or  $-\text{C}(\text{CH}_3)_2-$ ,

$\text{R}_{17}$  is  $C_2$ - $C_{10}$ alkylene, phenylene, tolylene, diphenylenemethane or a group

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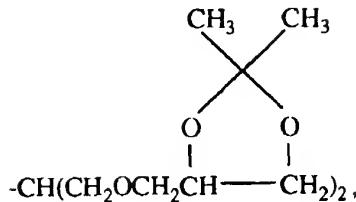
$\text{R}_{18}$  is  $C_2$ - $C_{10}$ alkylene or  $C_4$ - $C_{20}$ alkylene which is interrupted by one or more O,

$\text{R}_{19}$  is  $C_3$ - $C_{12}$ alkanetriyl,

$\text{R}_{20}$  is  $C_4$ - $C_{12}$ alkanetetryl,

$\text{R}_{21}$  is  $C_1$ - $C_{18}$ alkyl,  $C_3$ - $C_{18}$ alkenyl, phenyl, phenyl substituted by  $C_1$ - $C_{12}$ alkyl,  $C_1$ - $C_{12}$ alkoxy or halogen, or  $\text{R}_{21}$  is  $C_2$ - $C_{10}$ alkanoyl, benzoyl,  $C_3$ - $C_{18}$ alkenoyl, furyl or a group

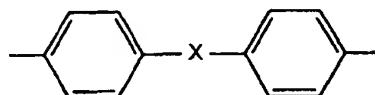
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$R_{22}$  is  $C_2$ - $C_5$ alkenyl,  
 $R_{23}$  is  $C_2$ - $C_{10}$ alkylene, phenylene or a group

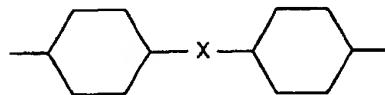
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or

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wherein X is O, S,  $SO_2$ ,  $CH_2$  or  $C(CH_3)_2$ , and  
 $R_{24}$  is  $C_2$ - $C_{14}$ alkylene, vinylene or o-phenylene.

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9. An organic polymer as a material according to claim 8.
10. A polycarbonate according to claim 9.
- 35 11. An organic material according to claim 8 which is a radiation-curable coating material.
12. The use of the compounds of claim 8 of the formula Ia as a stabilizer for organic materials, in particular for organic polymers.
- 40 13. Use according to claim 12 as a stabilizer for polycarbonates.
14. The use of the compounds of claim 8 of the formula Ia as stabilizer for radiation-curable coating material.

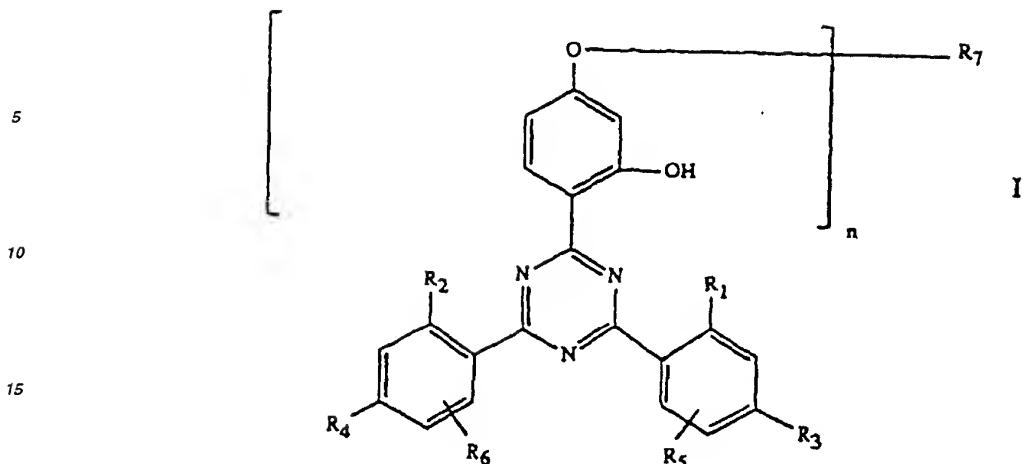
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#### Patentansprüche

##### Patentansprüche für folgende Vertragsstaaten : AT, BE, CH, DE, FR, GB, IT, LI, NL

- 50 1. Organisches Material, das gegen durch Licht, Wärme und Sauerstoff verursachte Schädigung stabilisiert wurde und das enthält
  - (a) mindestens ein sterisch gehindertes Amin vom Polyalkylpiperidintyp und
  - (b) mindestens ein o-Hydroxyphenyl-s-triazin, worin die Triazinverbindung (b) eine Verbindung der Formel I

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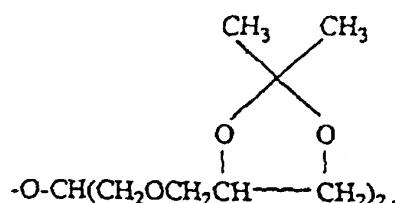


R<sub>1</sub> und R<sub>2</sub> unabhängig voneinander H, OH, C<sub>1</sub>-C<sub>12</sub>-Alkyl, Cyclohexyl oder Trifluormethyl darstellen,  
R<sub>3</sub> und R<sub>4</sub> unabhängig voneinander H, OH, C<sub>1</sub>-C<sub>12</sub>-Alkyl, Cyclohexyl, C<sub>1</sub>-C<sub>18</sub>-Alkoxy oder Halogen darstellen und wenn n = 1, ebenfalls den Rest -OR<sub>7</sub> bedeuten können,

25 R<sub>5</sub> und R<sub>6</sub> unabhängig voneinander H, C<sub>1</sub>-C<sub>12</sub>-Alkyl oder Halogen darstellen,

R<sub>7</sub>, wenn n 1 ist, a) C<sub>1</sub>-C<sub>18</sub>-Alkyl, das mit einer oder mehreren Gruppen OH, C<sub>1</sub>-C<sub>18</sub>-Alkoxy, C<sub>3</sub>-C<sub>18</sub>-Alkenoxy, Halogen, Phenoxy (das unsubstituiert oder mit C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>1</sub>-C<sub>18</sub>-Alkoxy oder Halogen substituiert ist), Furyloxy,

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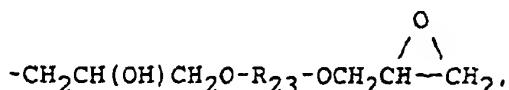


40 -COOH, -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>), -NHCOR<sub>11</sub>, -CN und/ oder mit -O-CO-R<sub>11</sub> substituiert ist,

45 b) C<sub>4</sub>-C<sub>50</sub>-Alkyl, das durch ein oder mehrere Atome O unterbrochen ist und mit OH oder/und Glycidyloxy substituiert sein kann,

c) C<sub>3</sub>-C<sub>6</sub>-Alkenyl,  
d) Glycidyl oder eine Gruppe

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55 e) Cyclohexyl, das unsubstituiert oder mit OH oder -OCOR<sub>11</sub> substituiert ist,  
f) C<sub>7</sub>-C<sub>11</sub>-Phenylalkyl, das unsubstituiert oder mit OH, Cl oder CH<sub>3</sub> substituiert ist,  
g) -CO-R<sub>12</sub> oder  
h) -SO<sub>2</sub>-R<sub>13</sub> darstellt,

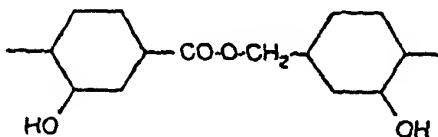
und wenn n 2 ist,

R<sub>7</sub>

5 a) C<sub>2</sub>-C<sub>16</sub>-Alkylen,  
 b) C<sub>4</sub>-C<sub>12</sub>-Alkenylen,  
 c) Xylylen,  
 d) C<sub>3</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist,  
 e) eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CO-NH-R<sub>17</sub>-NH-CO-  
 oder -(CH<sub>2</sub>)<sub>m</sub>-COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub>- (worin m 1 bis 3 ist) oder

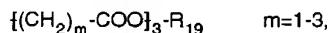
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darstellt, und wenn n 3 ist, R<sub>7</sub> eine Gruppe

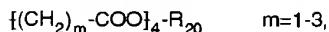
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darstellt,

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und wenn n 4 ist, R<sub>7</sub> eine Gruppe



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darstellt,

R<sub>8</sub> C<sub>1</sub>-C<sub>16</sub>-Alkyl, C<sub>3</sub>-C<sub>18</sub>-Alkenyl, C<sub>3</sub>-C<sub>20</sub>-Alkyl, das durch ein oder mehrere Atome O, N oder S unterbrochen und/oder mit OH substituiert ist, C<sub>1</sub>-C<sub>4</sub>-Alkyl, das substituiert ist mit -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) oder -OCOR<sub>11</sub> und/oder OH, C<sub>3</sub>-C<sub>18</sub>-Alkenyl, Glycidyl oder C<sub>7</sub>-C<sub>11</sub>-Phenylalkyl,

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R<sub>9</sub> und R<sub>10</sub> unabhängig voneinander C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>3</sub>-C<sub>12</sub>-Alkoxyalkyl, C<sub>4</sub>-C<sub>16</sub>-Dialkylaminoalkyl oder C<sub>5</sub>-C<sub>12</sub>-Cycloalkyl darstellen oder R<sub>9</sub> und R<sub>10</sub> zusammen C<sub>3</sub>-C<sub>9</sub>-Alkylen oder C<sub>3</sub>-C<sub>9</sub>-Oxaalkylen oder C<sub>3</sub>-C<sub>9</sub>-Azaalkylen darstellen,

R<sub>11</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>2</sub>-C<sub>18</sub>-Alkenyl oder Phenyl darstellt,

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R<sub>12</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>2</sub>-C<sub>18</sub>-Alkenyl, Phenyl, C<sub>1</sub>-C<sub>12</sub>-Alkoxy, Phenoxy, C<sub>1</sub>-C<sub>12</sub>-Alkylamino oder C<sub>6</sub>-C<sub>12</sub>-Aryl-amino oder eine Gruppe -R<sub>24</sub>-COOH oder -NH-R<sub>17</sub>-NCO darstellt,

R<sub>13</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>6</sub>-C<sub>12</sub>-Aryl oder C<sub>7</sub>-C<sub>14</sub>-Alkaryl darstellt,

R<sub>14</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl oder Phenyl darstellt,

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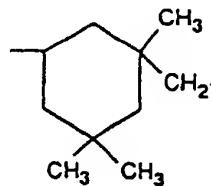
R<sub>15</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, C<sub>4</sub>-C<sub>50</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, Phenylene oder eine Gruppe -Phenylene-X-Phenylene-, worin X -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- oder -C(CH<sub>3</sub>)<sub>2</sub>- bedeutet, darstellt,

R<sub>16</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, C<sub>2</sub>-C<sub>10</sub>-Oxaalkylen oder C<sub>2</sub>-C<sub>10</sub>-Thiaalkylen, C<sub>6</sub>-C<sub>12</sub>-Arylen oder C<sub>2</sub>-C<sub>6</sub>-Alkenylen darstellt,

R<sub>17</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, Phenylene, Tolylen, Diphenylenmethan oder eine Gruppe

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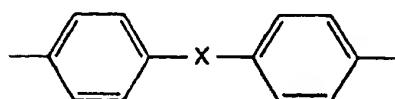
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darstellt,

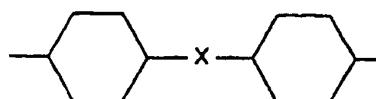
R<sub>18</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen oder C<sub>4</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, darstellt,R<sub>19</sub> C<sub>3</sub>-C<sub>12</sub>-Alkantriyl darstellt,R<sub>20</sub> C<sub>4</sub>-C<sub>12</sub>-Alkantetriyl darstellt,5 R<sub>23</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, Phenylen oder eine Gruppe

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oder

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darstellt,

worin X O, S, SO<sub>2</sub>, CH<sub>2</sub> oder C(CH<sub>3</sub>)<sub>2</sub> darstellt undR<sub>24</sub> C<sub>2</sub>-C<sub>14</sub>-Alkylen, Vinylen oder o-Phenylen darstellt.

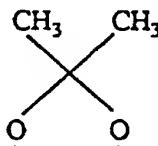
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2. Organisches Material nach Anspruch 1, worin die Triazinverbindung (b) eine Verbindung der Formel I darstellt, worin n 1 bis 4 ist, R<sub>1</sub> und R<sub>2</sub> unabhängig voneinander H, OH oder C<sub>1</sub>-C<sub>4</sub>-Alkyl darstellen, R<sub>3</sub> und R<sub>4</sub> unabhängig voneinander H, OH, C<sub>1</sub>-C<sub>4</sub>-Alkyl, C<sub>1</sub>-C<sub>4</sub>-Alkoxy, Halogen oder einen Rest -OR<sub>7</sub> darstellen, R<sub>5</sub> und R<sub>6</sub> unabhängig voneinander H oder C<sub>1</sub>-C<sub>4</sub>-Alkyl darstellen,

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R<sub>7</sub>, wenn n 1 ist, a) C<sub>1</sub>-C<sub>18</sub>-Alkyl, das mit einer oder mehreren Gruppen OH, C<sub>1</sub>-C<sub>18</sub>-Alkoxy, Allyloxy, Phenoxy, Furyloxy,

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-COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) und/oder mit -OCOR<sub>11</sub> substituiert ist, darstellt,

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b) C<sub>4</sub>-C<sub>50</sub>-Alkyl, das durch ein oder mehrere Atome O unterbrochen ist und mit OH oder/und Glycidyloxy substituiert sein kann,

c) Allyl, Glycidyl oder Benzyl,

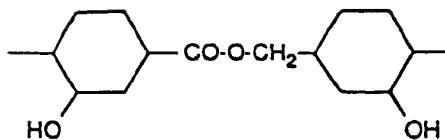
d) Cyclohexyl oder Hydroxycyclohexyl,

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und wenn n 2 ist, R<sub>7</sub> C<sub>4</sub>-C<sub>12</sub>-Alkylen, C<sub>4</sub>-C<sub>6</sub>-Alkenylen, Xylylen, C<sub>3</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist, oder R<sub>7</sub> eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOC-CH<sub>2</sub>- oder

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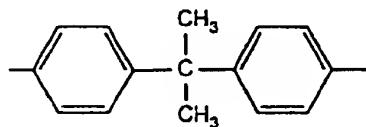
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darstellt,  
 und wenn n 3 ist, R<sub>7</sub> eine Gruppe {CH<sub>2</sub>COOCH<sub>2</sub>}<sub>3</sub>-C-C<sub>2</sub>H<sub>5</sub>  
 darstellt,  
 und wenn n 4 ist, R<sub>7</sub> eine Gruppe  
 {CH<sub>2</sub>COOCH<sub>2</sub>}<sub>3</sub>-C darstellt,  
 R<sub>8</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>3</sub>-C<sub>18</sub>-Alkenyl, C<sub>3</sub>-C<sub>20</sub>-Alkyl, das durch ein oder mehrere Atome O unterbrochen und/oder  
 mit OH substituiert ist, darstellt oder R<sub>8</sub> C<sub>1</sub>-C<sub>4</sub>-Alkyl, das mit -P(O)(OR<sub>14</sub>)<sub>2</sub> substituiert ist, darstellt, R<sub>9</sub> und  
 R<sub>10</sub> C<sub>1</sub>-C<sub>6</sub>-Alkyl darstellen oder R<sub>9</sub> und R<sub>10</sub> zusammen Pentamethylen oder 3-Oxapentamethylen darstellen,  
 R<sub>11</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>2</sub>-C<sub>5</sub>-Alkenyl oder Phenyl darstellt,  
 R<sub>14</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl darstellt,  
 R<sub>15</sub> C<sub>2</sub>-C<sub>8</sub>-Alkylen, C<sub>4</sub>-C<sub>50</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist oder eine Gruppe

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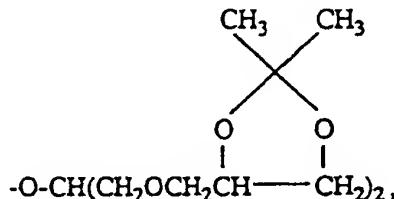
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bedeutet, darstellt,  
 R<sub>16</sub> C<sub>2</sub>-C<sub>8</sub>-Alkylen, C<sub>2</sub>-C<sub>6</sub>-Oxaalkylen oder C<sub>2</sub>-C<sub>6</sub>-Thiaalkylen darstellt und R<sub>18</sub> C<sub>4</sub>-C<sub>8</sub>-Alkylen oder C<sub>4</sub>-C<sub>12</sub>-  
 Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, darstellt.

3. Organisches Material nach Anspruch 1, worin die Triazinverbindung (b) eine Verbindung der Formel I darstellt,  
 worin n 1, 2 oder 4 ist, R<sub>1</sub> und R<sub>2</sub> unabhängig voneinander H oder CH<sub>3</sub> darstellen, R<sub>3</sub> und R<sub>4</sub> unabhängig vonein-  
 ander H, CH<sub>3</sub> oder Cl darstellen, R<sub>5</sub> und R<sub>6</sub> Wasserstoff darstellen,  
 R<sub>7</sub>, wenn n 1 ist, a) C<sub>1</sub>-C<sub>14</sub>-Alkyl, das mit ein oder mehreren der Gruppen OH, C<sub>1</sub>-C<sub>15</sub>-Alkoxy, Allyloxy, Phenoxy,  
 Furyloxy,

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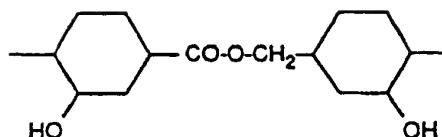
-COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) und/oder mit -OCOR<sub>11</sub> substituiert ist,

b) C<sub>6</sub>-C<sub>45</sub>-Alkyl, das durch ein oder mehrere Atome O unterbrochen ist und mit OH oder/und Glycidyloxy  
 substituiert sein kann,  
 c) Glycidyl oder  
 d) Hydroxycyclohexyl darstellt,

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und wenn n 2 ist, R<sub>7</sub> C<sub>6</sub>-C<sub>12</sub>-Alkylen, 2-Butenyl-1,4, Xylylen, C<sub>3</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere  
 Atome O unterbrochen oder mit OH substituiert ist, darstellt, oder R<sub>7</sub> eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-  
 OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOC-CH<sub>2</sub>- oder

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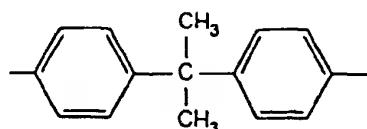


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darstellt,  
 und wenn n 4 ist,  $R_7$   $[\text{CH}_2\text{COOCH}_2]_4$ -C darstellt,  
 $R_8$   $\text{C}_4\text{-C}_{10}$ -Alkyl, Oleyl,  $\text{C}_3\text{-C}_{20}$ -Alkyl, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist, darstellt, oder  $R_6$   $-\text{CH}_2\text{P}(\text{O})(\text{OR}_{14})_2$  darstellt,  
 $R_9$  und  $R_{10}$   $\text{C}_2\text{-C}_6$ -Alkyl darstellen,  
 $R_{11}$   $\text{C}_6\text{-C}_{10}$ -Alkyl,  $\text{C}_2\text{-C}_3$ -Alkenyl darstellt,  
 $R_{14}$   $\text{C}_1\text{-C}_{12}$ -Alkyl darstellt,  
 $R_{15}$   $\text{C}_2\text{-C}_8$ -Alkylen,  $\text{C}_{10}\text{-C}_{45}$ -Alkylen, das durch mehr als ein Atom O unterbrochen ist oder eine Gruppe

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bedeutet, darstellt,  
 $R_{16}$   $\text{C}_4\text{-C}_8$ -Alkylen darstellt und  $R_{18}$   $\text{C}_4\text{-C}_8$ -Alkylen darstellt.

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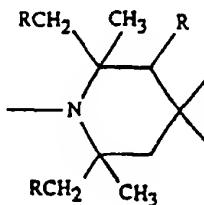
4. Organisches Material nach Anspruch 1, worin die Komponente (b) eine Verbindung der Formel I darstellt, worin n 1 oder 2 ist und, wenn n 1 ist,  $R_7$  eine Gruppe  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{-OR}_{21}$  darstellt, worin  $R_{21}$   $\text{C}_1\text{-C}_{18}$ -Alkyl, Allyl, Phenyl, Furyl,  $\text{C}_6\text{-C}_{12}$ -Alkanoyl oder  $\text{C}_3\text{-C}_5$ -Alkenoyl darstellt, und wenn n 2 ist,  $R_7$  eine Gruppe  $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{-OR}_{15}\text{OCH}_2\text{CH}(\text{OH})\text{CH}_2\text{-}$  darstellt, worin  $R_{15}$  wie in Anspruch 1 definiert ist.
5. Organisches Material nach Anspruch 1, worin die Komponente (b) eine Verbindung der Formel I darstellt, worin  $R_1$  und  $R_2$  Wasserstoff oder Methyl darstellen,  $R_3$  und  $R_4$  Wasserstoff, Chlor oder Methyl darstellen und  $R_5$  und  $R_6$  Wasserstoff darstellen.

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6. Organisches Material nach Anspruch 1, worin die Komponente (a) eine Verbindung, enthaltend mindestens eine Gruppe der Formel

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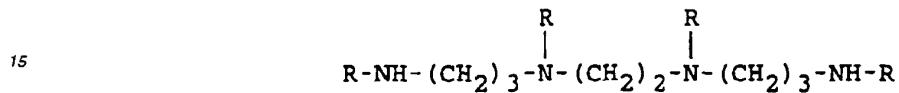
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worin R Wasserstoff oder Methyl bedeutet, darstellt.

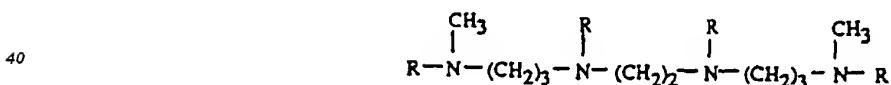
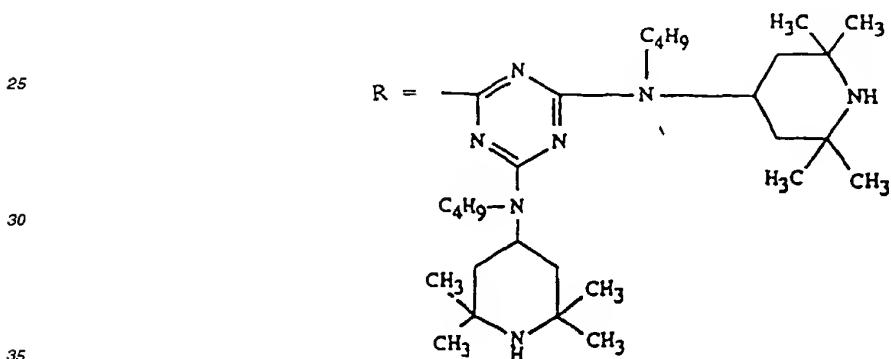
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7. Organisches Material nach Anspruch 6, worin R Wasserstoff darstellt.
8. Organisches Material nach Anspruch 6, worin die Komponente (a) eine der nachstehenden Verbindungen darstellt:
  - Di-(2,2,6,6-tetramethylpiperidin-4-yl)succinat,
  - Di-(2,2,6,6-tetramethylpiperidin-4-yl)sebacat,
  - Di-(1,2,2,6,6-pentamethylpiperidin-4-yl)sebacat,
  - Di-(1,2,2,6,6-pentamethylpiperidin-4-yl)butyl-(3,5-di-tert-butyl-4-hydroxybenzyl)malonat,

5 Di-(1-octyloxy-2,2,6,6-tetramethylpiperidin-4-yl)sebacat,  
 Tetra-(2,2,6,6-tetramethylpiperidin-4-yl)butan-1,2,3,4-tetracarboxylat,  
 Tetra-(1,2,2,6,6-pentamethylpiperidin-4-yl)butan-1,2,3,4-tetracarboxylat,  
 N-(2,2,6,6-Tetramethylpiperidin-4-yl)- $\beta$ -aminopropionsäuredodecylester,  
 N-(1-Octyloxy-2,2,6,6-tetramethylpiperidin-4-yl)-N'-dodecyloxalamid,  
 N-(2,2,6,6-Tetramethylpiperidin-4-yl)- $\alpha$ -dodecylsuccinimid,  
 2,2,4,4-Tetramethyl-7-oxa-3,20-diaza-21-oxodispiro[5.1.11.2]heneicosan,  
 8-Acetyl-3-dodecyl-1,3,8-triaza-7,7,9,9-tetramethylspiro[4.5]decan-2,4-dion,  
 20-(Dodecyloxycarbonylethyl)-2,2,4,4-tetramethyl-7-oxa-3,20-diaza-21-oxo-dispiro[5.1.11.2]heneicosan  
 10 oder eine Verbindung der Formeln



20 worin

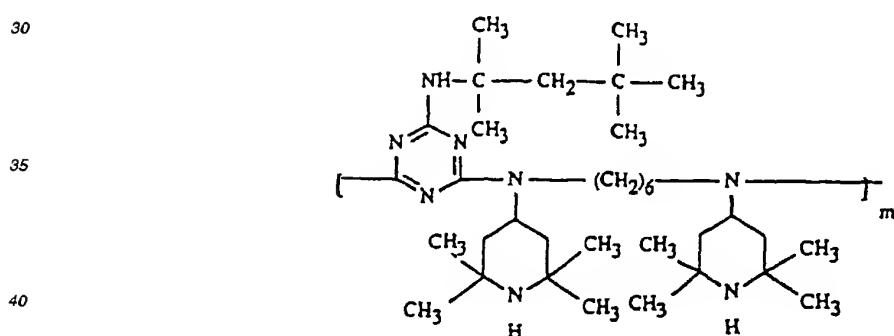
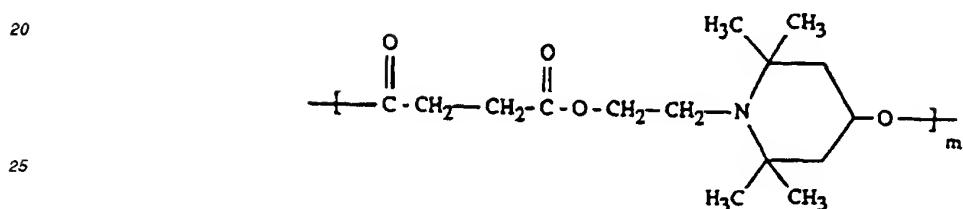
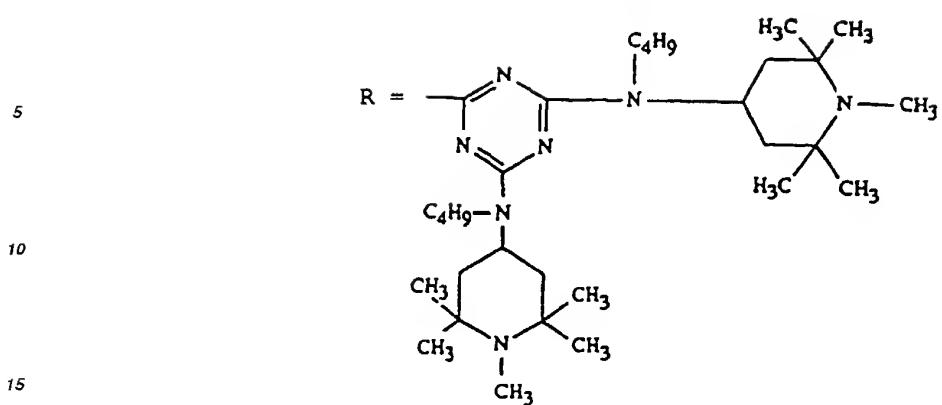


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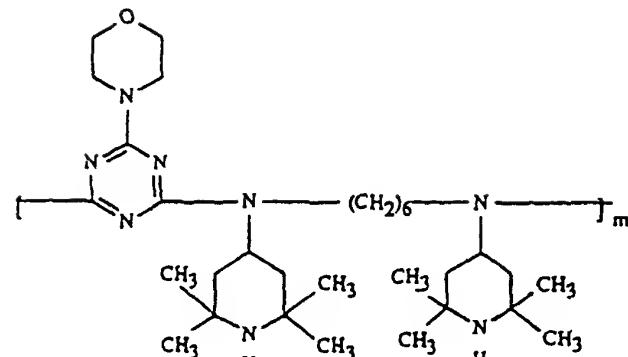
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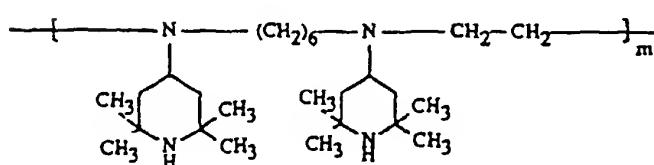
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oder



30 9. Organisches Material nach Anspruch 1, das 0,01 bis 5 Gew.-% der Komponente (a) und 0,02 bis 5 Gew.-% der Komponente (b), bezogen auf das Material, enthält.

10. Organisches Material nach Anspruch 9, das 0,02 bis 2 Gew.-% der Komponente (a) und 0,05 bis 3 Gew.-% der Komponente (b) enthält.

35 11. Organisches Material nach Anspruch 1, worin das Material ein organisches Polymer darstellt.

12. Organisches Polymer nach Anspruch 11, das zusätzlich zu den Komponenten (a) und (b) ebenfalls weiterhin Stabilisatoren, Füllstoffe, Verstärkungsmittel, Pigmente, Farbstoffe, Weichmacher, Lösungsmittel, Gleitmittel, Fließsteuerungsmittel, Fluoreszenzaufheller, Kernbildungsmittel, antistatische Mittel oder Flammverzögerungsmittel enthält.

40 13. Organisches Polymer nach Anspruch 11, worin das Polymer ein Beschichtungsbindemittel darstellt.

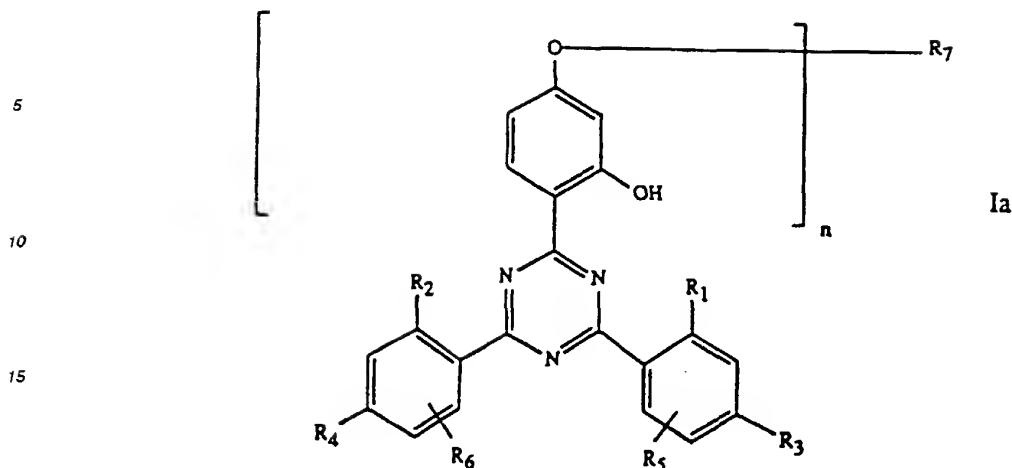
45 14. Organisches Material nach Anspruch 1, worin das Material ein strahlungshärtbares Beschichtungsmaterial darstellt.

15. Strahlungshärtbares Beschichtungsmaterial, enthaltend ein Hydroxyphenyltriazin der Formel I, wie in Anspruch 1 definiert, in Abwesenheit eines sterisch gehinderten Amins.

50 16. Verfahren zur Stabilisierung organischen Materials gegen durch Licht, Wärme und Sauerstoff verursachte Schädigung durch Zugabe der wie in Anspruch 1 definierten Komponenten (a) und (b).

17. Verbindung der Formel Ia

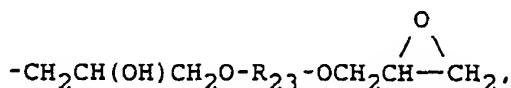
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worin n 1 bis 4 ist,

$R_1$  und  $R_2$  unabhängig voneinander H, OH,  $C_1$ - $C_{12}$ -Alkyl, Cyclohexyl oder Trifluormethyl darstellen,  
 $R_3$  und  $R_4$  unabhängig voneinander H, OH,  $C_1$ - $C_{12}$ -Alkyl, Cyclohexyl,  $C_1$ - $C_{18}$ -Alkoxy oder Halogen darstellen  
und im Fall, daß  $n = 1$ , ebenfalls einen Rest  $-OR_7$  darstellen können,  
 $R_5$  und  $R_6$  unabhängig voneinander H,  $C_1$ - $C_{12}$ -Alkyl oder Halogen darstellen,  
 $R_7$ , wenn n 1 ist,

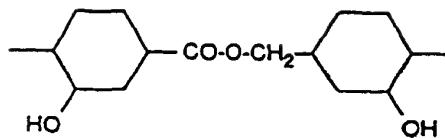
a)  $C_1$ - $C_{12}$ -Alkyl, das mit Phenoxy, (das unsubstituiert oder mit  $C_1$ - $C_{18}$ -Alkyl,  $C_1$ - $C_{18}$ -Alkoxy oder Halogen substituiert ist) oder mit einer Gruppe  $-COOR_8$ ,  $-CONH_2$ ,  $-CONHR_9$ ,  $-CON(R_9)(R_{10})$ ,  $-NH_2$ ,  $-NHR_9$ ,  $-N(R_9)(R_{10})$  oder  $-O-CO-R_{22}$  substituiert ist,  
b)  $C_4$ - $C_{50}$ -Alkyl, das durch mehr als ein Atom O unterbrochen ist und mit OH oder/und Glycidyloxy substituiert sein kann,  
c) Glycidyl oder eine Gruppe



d) Cyclohexyl, substituiert mit OH oder  $-OCOR_{11}$ ,  
e) eine Gruppe  $-CH_2CH(OH)CH_2OR_{21}$ ,  
f) eine Gruppe  $-SO_2-R_{13}$ ,  
g) eine Gruppe  $-CO-R_{12}$  darstellt, und

wenn n 2 ist,  $R_7$

a)  $C_2$ - $C_{12}$ -Alkylen,  
b)  $C_4$ - $C_{12}$ -Alkenylen,  
c) Xylylen,  
d)  $C_3$ - $C_{20}$ -Alkylen, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist,  
e) eine Gruppe  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ ,  $-(CH_2)_m-COO-R_{18}-OOC-(CH_2)_m-$  (worin m 1 bis 3 ist) oder



darstellt,  
und wenn n 3 ist, R<sub>7</sub> eine Gruppe

10 { $(\text{CH}_2)_m\text{-COO}_3\text{-R}_{19}$ } (worin m 1-3 ist),

15 darstellt,  
und wenn n 4 ist, R<sub>7</sub> eine Gruppe

{ $(\text{CH}_2)_m\text{-COO}_4\text{-R}_{20}$ } (worin m 1-3 ist),

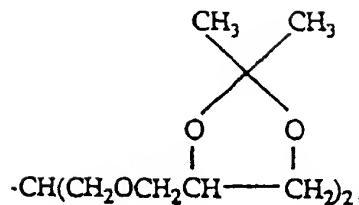
20 darstellt,  
R<sub>8</sub> C<sub>3</sub>-C<sub>20</sub>-Alkyl, das durch ein oder mehrere Atome O, N oder S unterbrochen ist und mit OH substituiert sein kann, darstellt oder R<sub>8</sub> C<sub>1</sub>-C<sub>4</sub>-Alkyl, das mit -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) oder -OCOR<sub>11</sub> substituiert ist, darstellt oder R<sub>8</sub> C<sub>3</sub>-C<sub>18</sub>-Alkenyl, Glycidyl oder C<sub>7</sub>-C<sub>11</sub>-Phenylalkyl darstellt,  
25 R<sub>9</sub> und R<sub>10</sub> unabhängig voneinander C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>3</sub>-C<sub>12</sub>-Alkoxyalkyl, C<sub>4</sub>-C<sub>16</sub>-Dialkylaminoalkyl oder C<sub>5</sub>-C<sub>12</sub>-Cycloalkyl darstellen oder R<sub>9</sub> und R<sub>10</sub> zusammen C<sub>3</sub>-C<sub>9</sub>-Alkylen oder C<sub>3</sub>-C<sub>9</sub>-Oxaalkylen oder C<sub>3</sub>-C<sub>9</sub>-Azaalkylen darstellen,  
R<sub>11</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>2</sub>-C<sub>18</sub>-Alkenyl oder Phenyl darstellt,  
R<sub>12</sub> eine Gruppe -R<sub>24</sub>-COOH oder -NH-R<sub>17</sub>-NCO darstellt,  
30 R<sub>13</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>6</sub>-C<sub>12</sub>-Aryl oder C<sub>7</sub>-C<sub>14</sub>-Alkaryl darstellt,  
R<sub>14</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl oder Phenyl darstellt,  
R<sub>15</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, C<sub>4</sub>-C<sub>50</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, darstellt oder R<sub>15</sub> Phenyl oder eine Gruppe -Phenyl-X-Phenyl- darstellt, worin X -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- oder -C(CH<sub>3</sub>)<sub>2</sub>- darstellt,  
35 R<sub>17</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, Phenyl, Tolylen, Diphenylenmethan oder eine Gruppe



45 darstellt,  
R<sub>18</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen oder C<sub>4</sub>-C<sub>20</sub>-Alkylen darstellt, das durch ein oder mehrere Atome O unterbrochen ist,  
R<sub>19</sub> C<sub>3</sub>-C<sub>12</sub>-Alkantriyl darstellt,  
R<sub>20</sub> C<sub>4</sub>-C<sub>12</sub>-Alkantetriyl darstellt,  
50 R<sub>21</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>3</sub>-C<sub>18</sub>-Alkenyl, Phenyl, Phenyl, das mit C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>1</sub>-C<sub>12</sub>-Alkoxy oder Halogen substituiert ist, darstellt, oder R<sub>21</sub> C<sub>2</sub>-C<sub>19</sub>-Alkanoyl, Benzoyl, C<sub>3</sub>-C<sub>18</sub>-Alkenoyl, Furyl oder eine Gruppe

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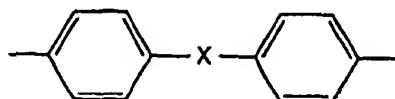
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darstellt,  
 $R_{22}$   $C_2$ - $C_5$ -Alkenyl darstellt,  
 $R_{23}$   $C_2$ - $C_{10}$ -Alkylen, Phenylén oder eine Gruppe

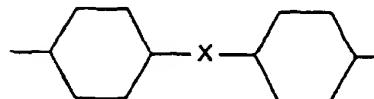
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oder

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darstellt,  
 worin X O, S,  $SO_2$ ,  $CH_2$  oder  $C(CH_3)_2$  darstellt und  
 $R_{24}$   $C_2$ - $C_{14}$ -Alkylen, Vinylen oder o-Phenylén darstellt.

18. Verbindung der Formel Ia nach Anspruch 17, worin n 1 oder 2 ist,

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$R_1$  und  $R_2$  unabhängig voneinander H, OH,  $C_1$ - $C_{12}$ -Alkyl oder Halogenmethyl darstellen,  
 $R_3$  und  $R_4$  unabhängig voneinander H, OH,  $C_1$ - $C_{12}$ -Alkyl,  $C_1$ - $C_{18}$ -Alkoxy oder Halogen darstellen und im Fall,  
 daß n = 1, ebenfalls ein Rest  $-OR_7$  sein können,  
 $R_5$  und  $R_6$  unabhängig voneinander H,  $C_1$ - $C_{12}$ -Alkyl oder Halogen darstellen,

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$R_7$   $C_1$ - $C_{12}$ -Alkyl, das substituiert ist mit Phenoxy, das unsubstituiert oder mit  $C_1$ - $C_{18}$ -Alkyl,  $C_1$ - $C_{18}$ -Alkoxy oder  
 Halogen substituiert ist,  $C_1$ - $C_{12}$ -Alkyl, das mit  $-COOR_8$ ,  $-CONHR_9$ ,  $-CON(R_9)(R_{10})$ ,  $-NH_2$ ,  $-NHR_9$   
 oder  $-N(R_9)(R_{10})$  substituiert ist,  $C_6$ - $C_{20}$ -Alkyl, das durch mehr als ein Atom O unterbrochen ist und mit OH  
 substituiert ist, Glycidyl, Cyclohexyl, substituiert mit OH oder  $-OCOR_{11}$ , eine Gruppe  $-CH_2CH(OH)CH_2-OR_{21}$   
 oder  $-SO_2R_{13}$  darstellt, wenn n 1 ist, und wenn n 2 ist,  $C_2$ - $C_{12}$ -Alkylen,  $C_4$ - $C_{12}$ -Alkenylen, Xylylen,  $C_3$ - $C_{20}$ -  
 Alkylen, das durch O unterbrochen und/oder mit OH substituiert ist, oder eine Gruppe  $-CH_2CH(OH)CH_2-O-$

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$R_{15}$ - $OCH_2CH(OH)CH_2-$  oder  $-(CH_2)_m-COO-R_{18}-OOC-(CH_2)_m-$  darstellt, worin m 1-3 ist,  
 $R_8$   $C_3$ - $C_{20}$ -Alkyl, das durch O, N oder S unterbrochen und/oder mit OH substituiert ist,  $C_1$ - $C_4$ -Alkyl, das mit  
 $-P(O)(OR_{14})_2$ ,  $-N(R_9)(R_{10})$  oder  $-OCOR_{11}$  substituiert ist,  $C_3$ - $C_{18}$ -Alkenyl, Glycidyl oder  $C_7$ - $C_{11}$ -Phenylalkyl  
 darstellt,

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$R_9$  und  $R_{10}$  unabhängig voneinander  $C_1$ - $C_{12}$ -Alkyl,  $C_3$ - $C_{12}$ -Alkoxyalkyl,  $C_4$ - $C_{16}$ -Dialkylaminoalkyl oder  $C_5$ - $C_{12}$ -  
 Cycloalkyl darstellen oder  $R_9$  und  $R_{10}$  zusammen  $C_3$ - $C_9$ -Alkylen oder  $C_3$ - $C_9$ -Oxaalkylen oder  $C_3$ - $C_9$ -Azaalky-  
 len darstellen,

$R_{11}$   $C_1$ - $C_{18}$ -Alkyl,  $C_2$ - $C_{16}$ -Alkenyl oder Phenyl darstellt,  
 $R_{13}$   $C_1$ - $C_{12}$ -Alkyl,  $C_6$ - $C_{12}$ -Aryl oder  $C_7$ - $C_{14}$ -Alkaryl darstellt,

$R_{14}$   $C_1$ - $C_{12}$ -Alkyl oder Phenyl darstellt,

$R_{15}$   $C_2$ - $C_{10}$ -Alkylen, Phenylén oder eine Gruppe  $-Phenyl-X-Phenyl-$ , worin X  $-O-$ ,  $-S-$ ,  $-SO_2-$ ,  $-CH_2-$  oder  
 $-C(CH_3)_2$  bedeutet, darstellt,

$R_{18}$   $C_2$ - $C_{10}$ -Alkylen oder  $C_4$ - $C_{20}$ -Alkylen, das durch O unterbrochen ist, darstellt und

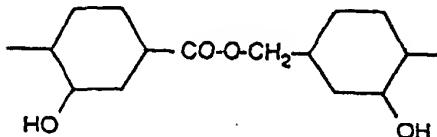
$R_{21}$   $C_1$ - $C_{18}$ -Alkyl, Phenyl, Phenyl, das mit  $C_1$ - $C_{12}$ -Alkyl,  $C_1$ - $C_{12}$ -Alkoxy oder Halogen substituiert ist,  $C_2$ - $C_{12}$ -

Alkanoyl, Benzoyl oder C<sub>3</sub>-C<sub>5</sub>-Alkenoyl darstellt.

19. Verbindung nach Anspruch 17 der Formel Ia, worin n 1 bis 4 ist, R<sub>1</sub> und R<sub>2</sub> unabhängig voneinander H, OH oder C<sub>1</sub>-C<sub>4</sub>-Alkyl darstellen, R<sub>3</sub> und R<sub>4</sub> unabhängig voneinander H, OH, C<sub>1</sub>-C<sub>4</sub>-Alkyl, C<sub>1</sub>-C<sub>4</sub>-Alkoxy, Halogen oder einen Rest -OR<sub>7</sub> darstellen, R<sub>5</sub> und R<sub>6</sub> unabhängig voneinander H oder C<sub>1</sub>-C<sub>4</sub>-Alkyl darstellen, R<sub>7</sub>, wenn n 1 ist, C<sub>1</sub>-C<sub>6</sub>-Alkyl, das mit -COOR<sub>8</sub>, -COONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) oder -OCOR<sub>22</sub> substituiert ist, darstellt oder R<sub>7</sub> Glycidyl, Hydroxycyclohexyl oder eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>-OR<sub>21</sub> darstellt, und wenn n 2 ist, R<sub>7</sub> C<sub>4</sub>-C<sub>12</sub>-Alkylen, C<sub>4</sub>-C<sub>6</sub>-Alkenylen, Xylylen, C<sub>3</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist, oder R<sub>7</sub> eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>-O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOCCH<sub>2</sub>- oder

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darstellt, und wenn n 3 ist,

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R<sub>7</sub> eine Gruppe {CH<sub>2</sub>COOCH<sub>2</sub>}<sub>3</sub>-C-C<sub>2</sub>H<sub>5</sub> darstellt und wenn n 4 ist, R<sub>7</sub> eine Gruppe {CH<sub>2</sub>COOCH<sub>2</sub>}<sub>4</sub>-C darstellt,

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R<sub>8</sub> C<sub>3</sub>-C<sub>20</sub>-Alkyl, das durch ein oder mehrere Atome O unterbrochen ist und mit OH substituiert sein kann, darstellt oder R<sub>8</sub> C<sub>1</sub>-C<sub>4</sub>-Alkyl, das durch -P(O)(OR<sub>14</sub>)<sub>2</sub> unterbrochen ist, darstellt oder R<sub>8</sub> C<sub>3</sub>-C<sub>18</sub>-Alkenyl darstellt,

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R<sub>9</sub> und R<sub>10</sub> unabhängig voneinander C<sub>1</sub>-C<sub>8</sub>-Alkyl oder Cyclohexyl darstellen oder R<sub>9</sub> und R<sub>10</sub> zusammen Pentamethylen oder 3-Oxapentamethylen darstellen,

R<sub>14</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl darstellt,

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R<sub>15</sub> C<sub>2</sub>-C<sub>8</sub>-Alkylen, C<sub>4</sub>-C<sub>50</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, darstellt, oder R<sub>15</sub> eine Gruppe -Phenyl-X-Phenyl- darstellt, worin X -O-, -CH<sub>2</sub>- oder -C(CH<sub>3</sub>)<sub>2</sub> darstellt,

R<sub>18</sub> C<sub>4</sub>-C<sub>8</sub>-Alkylen oder C<sub>4</sub>-C<sub>12</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, darstellt, R<sub>21</sub> C<sub>4</sub>-C<sub>18</sub>-Alkyl, Allyl, Phenyl, Furyl, C<sub>5</sub>-C<sub>19</sub>-Alkanoyl oder C<sub>3</sub>-C<sub>5</sub>-Alkenoyl darstellt und R<sub>22</sub> C<sub>2</sub>-C<sub>5</sub>-Alkenyl darstellt.

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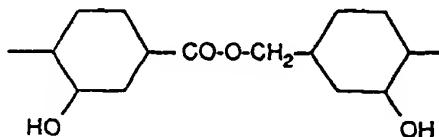
20. Verbindung nach Anspruch 17 der Formel Ia, worin n 1, 2 oder 4 ist, R<sub>1</sub> und R<sub>2</sub> unabhängig voneinander H oder CH<sub>3</sub> darstellen, R<sub>3</sub> und R<sub>4</sub> unabhängig voneinander H, CH<sub>3</sub> oder Cl darstellen, R<sub>5</sub> und R<sub>6</sub> Wasserstoff darstellen,

R<sub>7</sub>, wenn n 1 ist, C<sub>1</sub>-C<sub>4</sub>-Alkyl, das mit -COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) oder -OCOR<sub>22</sub> substituiert ist, darstellt oder R<sub>7</sub> Glycidyl, 2-Hydroxycyclohexyl oder eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub> darstellt,

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und wenn n 2 ist, R<sub>7</sub> C<sub>6</sub>-C<sub>12</sub>-Alkylen, 2-Buten-1,4-ylén, Xylylen oder C<sub>3</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist, darstellt, oder R<sub>7</sub> eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>-O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOCCH<sub>2</sub>- oder

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darstellt

und wenn n 4 ist, R<sub>7</sub> eine Gruppe {CH<sub>2</sub>COOCH<sub>2</sub>}<sub>4</sub>-C darstellt,

R<sub>8</sub> C<sub>3</sub>-C<sub>20</sub>-Alkyl, das durch ein oder mehrere Atome O unterbrochen ist und mit OH substituiert sein kann, darstellt oder

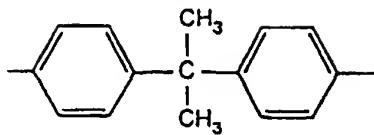
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R<sub>8</sub>-CH<sub>2</sub>P(O)(OR<sub>14</sub>)<sub>2</sub> oder Oleyl darstellt,

R<sub>9</sub> und R<sub>10</sub> C<sub>2</sub>-C<sub>6</sub>-Alkyl darstellen,

R<sub>15</sub> C<sub>2</sub>-C<sub>8</sub>-Alkylen, C<sub>10</sub>-C<sub>45</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, darstellt, oder eine Gruppe

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darstellt,  
 10 R<sub>18</sub> C<sub>4</sub>-C<sub>8</sub>-Alkylen darstellt,  
 R<sub>21</sub> C<sub>4</sub>-C<sub>15</sub>-Alkyl, Allyl, Phenyl, Furyl, C<sub>5</sub>-C<sub>12</sub>-Alkanoyl oder C<sub>3</sub>-C<sub>5</sub>-Alkenoyl darstellt und R<sub>22</sub> C<sub>2</sub>-C<sub>3</sub>-Alkenyl darstellt.

21. Verbindung nach Anspruch 17 der Formel Ia, worin n 2 ist.

15 22. Verfahren zum Stabilisieren organischen Materials, insbesondere organische Polymere, gegen durch Licht, Wärme und Sauerstoff verursachte Schädigung durch die Zugabe eines o-Hydroxyphenyltriazins, umfassend Zugeben von mindestens einer Verbindung der Formel Ia nach Anspruch 17.

20 23. Organisches Material, enthaltend mindestens eine Verbindung der Formel Ia nach Anspruch 17, als Stabilisator gegen durch Licht, Wärme und Sauerstoff verursachte Schädigung.

24. Organisches Polymer als Material nach Anspruch 23.

25. Organisches Material nach Anspruch 23, enthaltend 0,01 bis 10 Gew.-% einer Verbindung der Formel Ia, bezogen auf das Material.

26. Polycarbonat nach Anspruch 24.

27. Organisches Material nach Anspruch 23, das ein strahlungshärtbares Beschichtungsmaterial darstellt.

30 28. Verwendung der Verbindungen nach Anspruch 17 der Formel Ia als Stabilisator für organische Materialien, insbesondere für organische Polymere.

29. Verwendung nach Anspruch 28 als Stabilisator für Polycarbonate.

35 30. Verwendung der Verbindungen nach Anspruch 17 der Formel Ia als Stabilisator für strahlungshärtbares Beschichtungsmaterial.

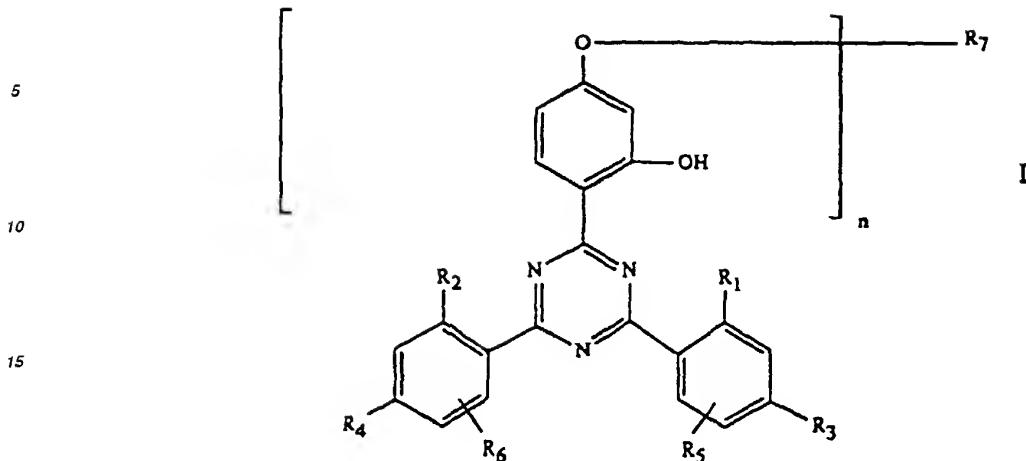
40 **Patentansprüche für folgenden Vertragsstaat : ES**

1. Organisches Material, das gegen durch Licht, Wärme und Sauerstoff verursachte Schädigung stabilisiert wurde und das enthält

45 (a) 0,01 bis 5 Gew.-% mindestens ein sterisch gehindertes Amin vom Polyalkylpiperidintyp und  
 (b) 0,02 bis 5 Gew.-% mindestens ein o-Hydroxyphenyl-s-triazin, worin die Triazinverbindung (b) eine Verbindung der Formel I

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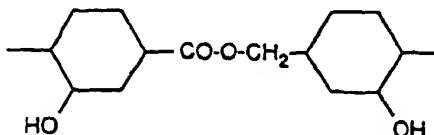
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und wenn n 2 ist, R<sub>7</sub>

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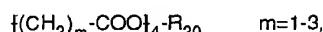
- a) C<sub>2</sub>-C<sub>16</sub>-Alkylen,
- b) C<sub>4</sub>-C<sub>12</sub>-Alkenylen,
- c) Xylylen,
- d) C<sub>3</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist,
- e) eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CO-NH-R<sub>17</sub>-NH-CO- oder -(CH<sub>2</sub>)<sub>m</sub>-COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub>- (worin m 1 bis 3 ist) oder



darstellt,  
und wenn n 3 ist, R<sub>7</sub> eine Gruppe



darstellt,  
und wenn n 4 ist, R<sub>7</sub> eine Gruppe

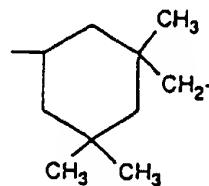


30 R<sub>8</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>3</sub>-C<sub>18</sub>-Alkenyl, C<sub>3</sub>-C<sub>20</sub>-Alkyl, das durch ein oder mehrere Atome O, N oder S unterbrochen und/oder mit OH substituiert ist, C<sub>1</sub>-C<sub>4</sub>-Alkyl, das substituiert ist mit -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) oder -OCOR<sub>11</sub> und/oder OH, C<sub>3</sub>-C<sub>18</sub>-Alkenyl, Glycidyl oder C<sub>7</sub>-C<sub>11</sub>-Phenylalkyl,  
R<sub>9</sub> und R<sub>10</sub> unabhängig voneinander C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>3</sub>-C<sub>12</sub>-Alkoxyalkyl, C<sub>4</sub>-C<sub>16</sub>-Dialkylaminoalkyl oder C<sub>5</sub>-C<sub>12</sub>-Cycloalkyl darstellen oder R<sub>9</sub> und R<sub>10</sub> zusammen C<sub>3</sub>-C<sub>9</sub>-Alkylen oder C<sub>3</sub>-C<sub>9</sub>-Oxaalkylen oder C<sub>3</sub>-C<sub>9</sub>-Azaalkylen darstellen,

35 R<sub>11</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>2</sub>-C<sub>18</sub>-Alkenyl oder Phenyl darstellt,  
R<sub>12</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>2</sub>-C<sub>18</sub>-Alkenyl, Phenyl, C<sub>1</sub>-C<sub>12</sub>-Alkoxy, Phenoxy, C<sub>1</sub>-C<sub>12</sub>-Alkylamino oder C<sub>6</sub>-C<sub>12</sub>-Arylamino oder eine Gruppe -R<sub>24</sub>-COOH oder -NH-R<sub>17</sub>-NCO darstellt,  
R<sub>13</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>6</sub>-C<sub>12</sub>-Aryl oder C<sub>7</sub>-C<sub>14</sub>-Alkaryl darstellt,

40 R<sub>14</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl oder Phenyl darstellt,  
R<sub>15</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, C<sub>4</sub>-C<sub>50</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, Phenylen oder eine Gruppe -Phenylen-X-Phenylen-, worin X -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- oder -C(CH<sub>3</sub>)<sub>2</sub>- bedeutet, darstellt,  
R<sub>16</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, C<sub>2</sub>-C<sub>10</sub>-Oxaalkylen oder C<sub>2</sub>-C<sub>10</sub>-Thiaalkylen, C<sub>6</sub>-C<sub>12</sub>-Arylen oder C<sub>2</sub>-C<sub>6</sub>-Alkenylen darstellt,

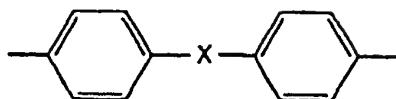
45 R<sub>17</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, Phenylen, Tolylen, Diphenylemethan oder eine Gruppe



darstellt,  
R<sub>18</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen oder C<sub>4</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, darstellt,

R<sub>19</sub> C<sub>3</sub>-C<sub>12</sub>-Alkantriyl darstellt,  
 R<sub>20</sub> C<sub>4</sub>-C<sub>12</sub>-Alkantetryl darstellt,  
 R<sub>27</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, Phenylens oder eine Gruppe

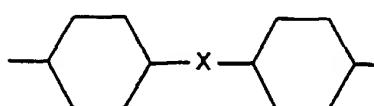
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oder

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darstellt,  
 worin X O, S, SO<sub>2</sub>, CH<sub>2</sub> oder C(CH<sub>3</sub>)<sub>2</sub> darstellt und  
 R<sub>24</sub> C<sub>2</sub>-C<sub>14</sub>-Alkylen, Vinylen oder o-Phenylens darstellt.

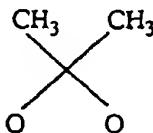
25 2. Organisches Material nach Anspruch 1, worin die Triazinverbindung (b) eine Verbindung der Formel I darstellt,  
 worin n 1, 2 oder 4 ist, R<sub>1</sub> und R<sub>2</sub> unabhängig voneinander H oder CH<sub>3</sub> darstellen, R<sub>3</sub> und R<sub>4</sub> unabhängig voneinander H, CH<sub>3</sub> oder Cl darstellen, R<sub>5</sub> und R<sub>6</sub> Wasserstoff darstellen,

R<sub>7</sub>, wenn n 1 ist,

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a) C<sub>1</sub>-C<sub>14</sub>-Alkyl, das mit ein oder mehreren der Gruppen OH, C<sub>1</sub>-C<sub>15</sub>-Alkoxy, Allyloxy, Phenoxy, Furyloxy,

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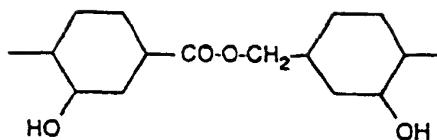
-COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) und/oder mit -OCOR<sub>11</sub> substituiert ist,  
 b) C<sub>6</sub>-C<sub>45</sub>-Alkyl, das durch ein oder mehrere Atome O unterbrochen ist und mit OH oder/und Glycidyloxy  
 substituiert sein kann,  
 c) Glycidyl oder  
 d) Hydroxycyclohexyl darstellt,

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und wenn n 2 ist, R<sub>7</sub> C<sub>6</sub>-C<sub>12</sub>-Alkylen, 2-Butenylen-1,4, Xylylen, C<sub>3</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen oder mit OH substituiert ist, darstellt, oder R<sub>7</sub> eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-  
 OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOC-CH<sub>2</sub>- oder

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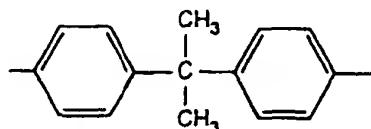


10 darstellt,

und wenn n 4 ist, R<sub>7</sub> [CH<sub>2</sub>COOCH<sub>2</sub>]<sub>4</sub>-C darstellt,  
 R<sub>8</sub> C<sub>4</sub>-C<sub>10</sub>-Alkyl, Oleyl, C<sub>3</sub>-C<sub>20</sub>-Alkyl, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist, darstellt, oder R<sub>8</sub>-CH<sub>2</sub>P(O)(OR<sub>14</sub>)<sub>2</sub> darstellt,  
 R<sub>9</sub> und R<sub>10</sub> C<sub>2</sub>-C<sub>6</sub>-Alkyl darstellen,  
 R<sub>11</sub> C<sub>6</sub>-C<sub>10</sub>-Alkyl, C<sub>2</sub>-C<sub>3</sub>-Alkenyl darstellt,  
 R<sub>14</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl darstellt,  
 R<sub>15</sub> C<sub>2</sub>-C<sub>8</sub>-Alkylen, C<sub>10</sub>-C<sub>45</sub>-Alkylen, das durch mehr als ein Atom O unterbrochen ist oder eine Gruppe

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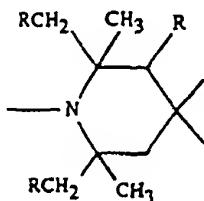
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bedeutet, darstellt,  
 R<sub>16</sub> C<sub>4</sub>-C<sub>8</sub>-Alkylen darstellt und R<sub>18</sub> C<sub>4</sub>-C<sub>8</sub>-Alkylen darstellt.

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3. Organisches Material nach Anspruch 1, worin die Komponente (a) eine Verbindung, enthaltend mindestens eine Gruppe der Formel

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worin R Wasserstoff oder Methyl darstellt, wobei R vorzugsweise Wasserstoff ist, darstellt.

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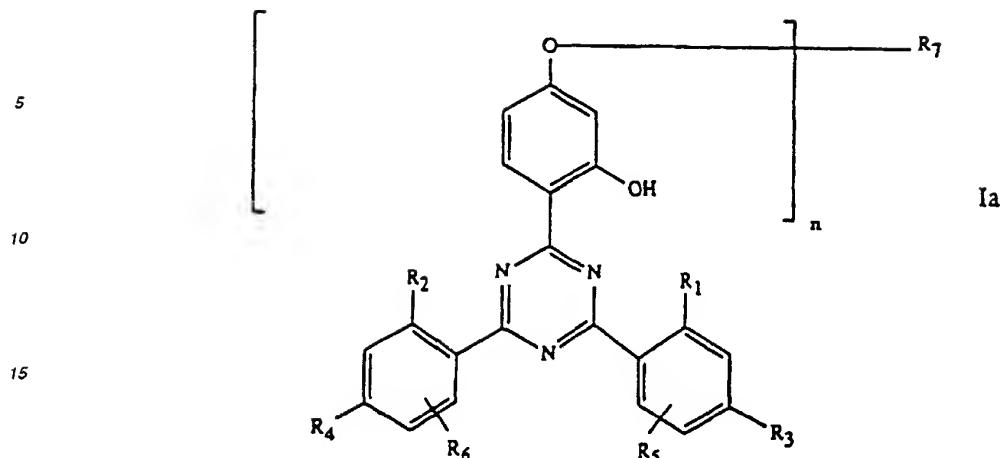
4. Organisches Material nach Anspruch 4, worin das Material ein organisches Polymer darstellt.

5. Organisches Polymer nach Anspruch 4, worin das Polymer ein Beschichtungsbindemittel darstellt.

6. Organisches Material nach Anspruch 1, worin das Material ein strahlungshärtbares Beschichtungsmaterial darstellt.

7. Strahlungshärtbares Beschichtungsmaterial, enthaltend ein Hydroxyphenyltriazin der Formel I, wie in Anspruch 1 definiert, in Abwesenheit eines sterisch gehinderten Amins.

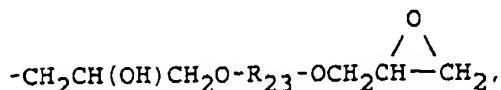
8. Organisches Material, das gegen durch Licht, Wärme und Sauerstoff verursachte Schädigung stabilisiert wurde, enthaltend 0,01 bis 10 Gew.-% mindestens eine Verbindung der Formel Ia



worin n 1 bis 4 ist,

R<sub>1</sub> und R<sub>2</sub> unabhängig voneinander H, OH, C<sub>1</sub>-C<sub>12</sub>-Alkyl, Cyclohexyl oder Trifluormethyl darstellen,  
 R<sub>3</sub> und R<sub>4</sub> unabhängig voneinander H, OH, C<sub>1</sub>-C<sub>12</sub>-Alkyl, Cyclohexyl, C<sub>1</sub>-C<sub>18</sub>-Alkoxy oder Halogen darstellen  
 und im Fall, daß n = 1, ebenfalls einen Rest -OR<sub>7</sub> darstellen können,  
 R<sub>5</sub> und R<sub>6</sub> unabhängig voneinander H, C<sub>1</sub>-C<sub>12</sub>-Alkyl oder Halogen darstellen,  
 R<sub>7</sub>, wenn n 1 ist,

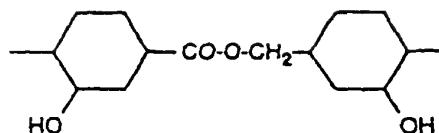
a) C<sub>1</sub>-C<sub>12</sub>-Alkyl, das mit Phenoxy, (das unsubstituiert oder mit C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>1</sub>-C<sub>18</sub>-Alkoxy oder Halogen substituiert ist) oder mit einer Gruppe -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) oder -O-CO-R<sub>22</sub> substituiert ist,  
 b) C<sub>4</sub>-C<sub>50</sub>-Alkyl, das durch mehr als ein Atom O unterbrochen ist und mit OH oder/und Glycidyloxy substituiert sein kann,  
 c) Glycidyl oder eine Gruppe



d) Cyclohexyl, substituiert mit OH oder -OCOR<sub>11</sub>,  
 e) eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub>,  
 f) eine Gruppe -SO<sub>2</sub>-R<sub>13</sub>,  
 g) eine Gruppe -CO-R<sub>12</sub> darstellt, und

wenn n 2 ist, R<sub>7</sub>

a) C<sub>2</sub>-C<sub>12</sub>-Alkylen,  
 b) C<sub>4</sub>-C<sub>12</sub>-Alkenylen,  
 c) Xylylen,  
 d) C<sub>3</sub>-C<sub>20</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen und/oder mit OH substituiert ist,  
 e) eine Gruppe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -(CH<sub>2</sub>)<sub>m</sub>-COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub>- (worin m 1 bis 3 ist) oder



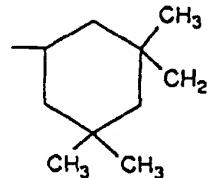
darstellt,  
und wenn n 3 ist, R<sub>7</sub> eine Gruppe

10 { (CH<sub>2</sub>)<sub>m</sub> -COO }<sub>3</sub> -R<sub>19</sub> (worin m 1-3 ist),

15 darstellt,  
und wenn n 4 ist, R<sub>7</sub> eine Gruppe

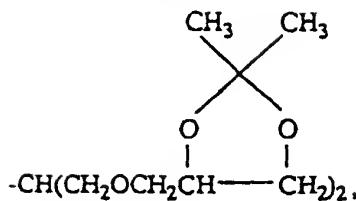
{ (CH<sub>2</sub>)<sub>m</sub> -COO }<sub>4</sub> -R<sub>20</sub> (worin m 1-3 ist),

20 darstellt,  
R<sub>8</sub> C<sub>3</sub>-C<sub>20</sub>-Alkyl, das durch ein oder mehrere Atome O, N oder S unterbrochen ist und mit OH substituiert sein kann, darstellt oder R<sub>8</sub> C<sub>1</sub>-C<sub>4</sub>-Alkyl, das mit -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) oder -OCOR<sub>11</sub> substituiert ist, darstellt oder R<sub>8</sub> C<sub>3</sub>-C<sub>18</sub>-Alkenyl, Glycidyl oder C<sub>7</sub>-C<sub>11</sub>-Phenylalkyl darstellt,  
25 R<sub>9</sub> und R<sub>10</sub> unabhängig voneinander C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>3</sub>-C<sub>12</sub>-Alkoxyalkyl, C<sub>4</sub>-C<sub>16</sub>-Dialkylaminoalkyl oder C<sub>5</sub>-C<sub>12</sub>-Cycloalkyl darstellen oder R<sub>9</sub> und R<sub>10</sub> zusammen C<sub>3</sub>-C<sub>9</sub>-Alkylen oder C<sub>3</sub>-C<sub>9</sub>-Oxaalkylen oder C<sub>3</sub>-C<sub>9</sub>-Azaalkylen darstellen,  
R<sub>11</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>2</sub>-C<sub>18</sub>-Alkenyl oder Phenyl darstellt,  
R<sub>12</sub> eine Gruppe -R<sub>24</sub>-COOH oder -NH-R<sub>17</sub>-NCO darstellt,  
30 R<sub>13</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>6</sub>-C<sub>12</sub>-Aryl oder C<sub>7</sub>-C<sub>14</sub>-Alkaryl darstellt,  
R<sub>14</sub> C<sub>1</sub>-C<sub>12</sub>-Alkyl oder Phenyl darstellt,  
R<sub>15</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, C<sub>4</sub>-C<sub>50</sub>-Alkylen, das durch ein oder mehrere Atome O unterbrochen ist, darstellt oder R<sub>16</sub> Phenylethen oder eine Gruppe -Phenylen-X-Phenylen- darstellt, worin X -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- oder -C(CH<sub>3</sub>)<sub>2</sub>- darstellt,  
35 R<sub>17</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen, Phenylethen, Tolylen, Diphenylethethan oder eine Gruppe



45 darstellt,  
R<sub>18</sub> C<sub>2</sub>-C<sub>10</sub>-Alkylen oder C<sub>4</sub>-C<sub>20</sub>-Alkylen darstellt, das durch ein oder mehrere Atome O unterbrochen ist,  
R<sub>19</sub> C<sub>3</sub>-C<sub>12</sub>-Alkantriyl darstellt,  
R<sub>20</sub> C<sub>4</sub>-C<sub>12</sub>-Alkantetryl darstellt,  
50 R<sub>21</sub> C<sub>1</sub>-C<sub>18</sub>-Alkyl, C<sub>3</sub>-C<sub>18</sub>-Alkenyl, Phenyl, Phenyl, das mit C<sub>1</sub>-C<sub>12</sub>-Alkyl, C<sub>1</sub>-C<sub>12</sub>-Alkoxy oder Halogen substituiert ist, darstellt, oder R<sub>21</sub> C<sub>2</sub>-C<sub>19</sub>-Alkanoyl, Benzoyl, C<sub>3</sub>-C<sub>18</sub>-Alkenoyl, Furyl oder eine Gruppe

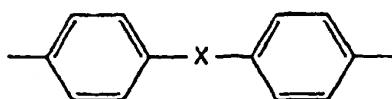
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darstellt,  
 $\text{R}_{22}$  C<sub>2</sub>-C<sub>5</sub>-Alkenyl darstellt,  
 $\text{R}_{23}$  C<sub>2</sub>-C<sub>10</sub>-Alkylen, Phenylén oder eine Gruppe

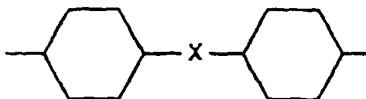
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oder

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darstellt,  
 worin X O, S, SO<sub>2</sub>, CH<sub>2</sub> oder C(CH<sub>3</sub>)<sub>2</sub> darstellt und  
 $\text{R}_{24}$  C<sub>2</sub>-C<sub>14</sub>-Alkylen, Vinylen oder o-Phenylén darstellt.

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9. Organisches Polymer als Material nach Anspruch 8.

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10. Polycarbonat nach Anspruch 9.

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11. Organisches Material nach Anspruch 8, das ein strahlungshärtbares Beschichtungsmaterial darstellt.

12. Verwendung der Verbindungen nach Anspruch 8 der Formel Ia als Stabilisator für organische Materialien, insbesondere für organische Polymere.

13. Verwendung nach Anspruch 12 als Stabilisator für Polycarbonate.

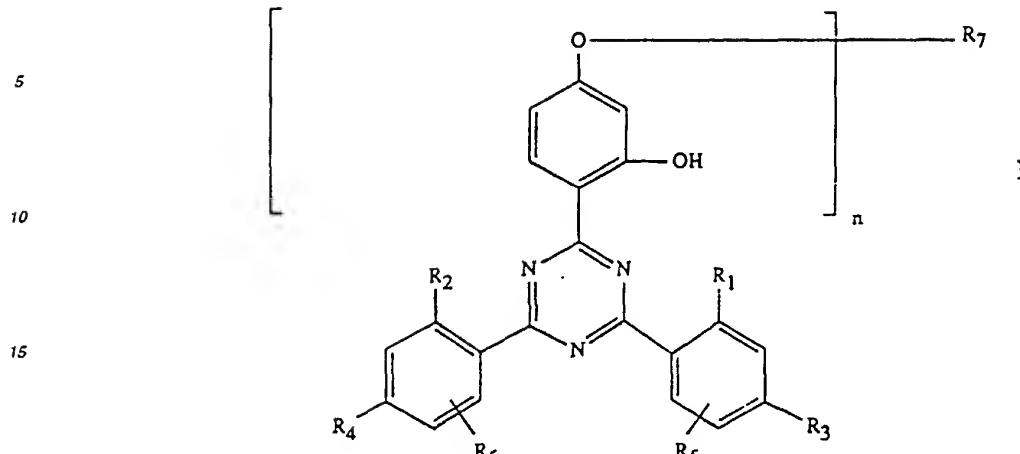
14. Verwendung der Verbindungen nach Anspruch 8 der Formel Ia als Stabilisator für strahlungshärtbares Beschichtungsmaterial.

### Revendications

50. Revendications pour les Etats contractants suivants : AT, BE, CH, DE, FR, GB, IT, LI, NL

1. Une matière organique qui a été stabilisée contre une dégradation provoquée par la lumière, la chaleur et l'oxygène, et qui contient

55. (a) au moins une amine à empêchement stérique du type polyalkylpipéridine, et  
 (b) au moins une o-hydroxyphényl-s-triazine,  
 dans laquelle le composé triazinique (b) est un composé de la formule I



dans laquelle

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n est de 1 à 4,

R<sub>1</sub> et R<sub>2</sub> sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, cyclohexyle ou trifluorométhyle,

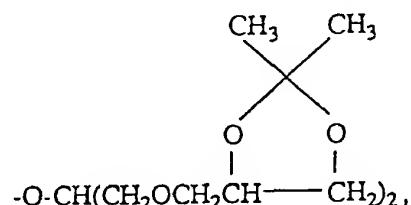
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R<sub>3</sub> et R<sub>4</sub> sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, cyclohexyle ou alcoxy en C<sub>1</sub>-C<sub>18</sub> ou un halogène, et, dans le cas où n = 1, peuvent aussi être un radical -OR<sub>7</sub>,

R<sub>5</sub> et R<sub>6</sub> sont chacun, indépendamment de l'autre, H, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> ou un halogène, R<sub>7</sub>, si n est 1, est

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a) un groupe alkyle en C<sub>1</sub>-C<sub>18</sub> qui est substitué par un ou plusieurs des groupes OH, alcoxy en C<sub>1</sub>-C<sub>18</sub>, alcénoxy en C<sub>3</sub>-C<sub>18</sub>, halogéno, phénoxy (qui n'est pas substitué ou est substitué par un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, alcoxy en C<sub>1</sub>-C<sub>18</sub> ou halogéno), furyloxy,



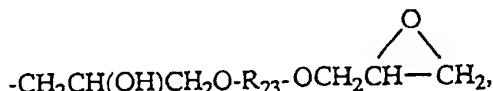
-COOH, -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>), -NHCOR<sub>11</sub>, -CN et/ou par -O-CO-R<sub>11</sub>,

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b) un groupe alkyle en C<sub>4</sub>-C<sub>50</sub> qui est interrompu par un ou plusieurs O et peut être substitué par OH et/ou un groupe glycidyleoxy,

c) un groupe alcényle en C<sub>3</sub>-C<sub>6</sub>,

d) un groupe glycidyle ou un groupe



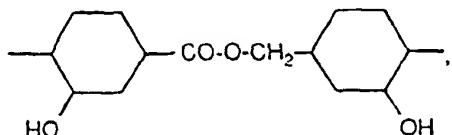
e) un groupe cyclohexyle qui n'est pas substitué ou est substitué par OH ou -OCOR<sub>11</sub>,

5 f) un groupe phénylalkyle en  $C_7$ - $C_{11}$  qui n'est pas substitué ou est substitué par OH, Cl ou  $CH_3$ ,  
 g) -CO-R<sub>12</sub> ou  
 h) -SO<sub>2</sub>-R<sub>13</sub>,

et si n est 2, R<sub>7</sub> est

10 a) un groupe alkylène en  $C_2$ - $C_{16}$ ,  
 b) un groupe alcénylène en  $C_4$ - $C_{12}$ ,  
 c) un groupe xylénène,  
 d) un groupe alkylène en  $C_3$ - $C_{20}$  qui est interrompu par un ou plusieurs O et/ou substitué par OH,  
 e) un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CO-NH-R<sub>17</sub>-NH-CO- ou -(CH<sub>2</sub>)<sub>m</sub>-COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub>- (où m est de 1 à 3) ou

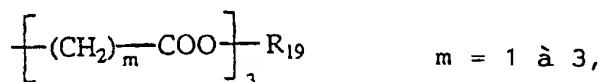
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et si n est 3, R<sub>7</sub> est un groupe

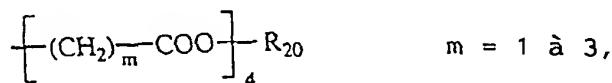
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et si n est 4, R<sub>7</sub> est un groupe

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R<sub>8</sub> est un groupe alkyle en  $C_1$ - $C_{18}$ , un groupe alcénylène en  $C_3$ - $C_{18}$ , un groupe alkyle en  $C_3$ - $C_{20}$  qui est interrompu par un ou plusieurs O, N ou S et/ou substitué par OH, un groupe alkyle en  $C_1$ - $C_4$  qui est substitué par -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) ou -OCOR<sub>11</sub> et/ou OH, un groupe alcénylène en  $C_3$ - $C_{18}$ , un groupe glycidyle ou un groupe phénylalkyle en  $C_7$ - $C_{11}$ ,

R<sub>9</sub> et R<sub>10</sub> sont chacun, indépendamment de l'autre, un groupe alkyle en  $C_1$ - $C_{12}$ , alcoxyalkyle en  $C_3$ - $C_{12}$ , dialkylaminoalkyle en  $C_4$ - $C_{16}$  ou cycloalkyle en  $C_5$ - $C_{12}$ , ou bien R<sub>9</sub> et R<sub>10</sub> forment ensemble un groupe alkylène en  $C_3$ - $C_9$  ou oxaalkylène en  $C_3$ - $C_9$  ou azaalkyl'C<sub>3</sub>-C<sub>9</sub>,

R<sub>11</sub> est un groupe alkyle en  $C_1$ - $C_{18}$ , alcénylène en  $C_2$ - $C_{18}$  ou phényle,

R<sub>12</sub> est un groupe alkyle en  $C_1$ - $C_{18}$ , alcénylène en  $C_2$ - $C_{18}$ , phényle, alcoxy en  $C_1$ - $C_{12}$ , phénoxy, alkylamino en  $C_1$ - $C_{12}$ , arylamino en  $C_6$ - $C_{12}$ , -R<sub>24</sub>-COOH ou -NH-R<sub>17</sub>-NCO,

R<sub>13</sub> est un groupe alkyle en  $C_1$ - $C_{12}$ , aryle en  $C_6$ - $C_{12}$  ou alkaryle en  $C_7$ - $C_{14}$ ,

R<sub>14</sub> est un groupe alkyle en  $C_1$ - $C_{12}$  ou phényle,

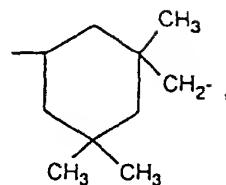
R<sub>15</sub> est un groupe alkylène en  $C_2$ - $C_{10}$ , un groupe alkylène en  $C_4$ - $C_{50}$  qui est interrompu par un ou plusieurs O, un groupe phénylène ou un groupe -phénylène-X-phénylène- où X est -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- ou -C(CH<sub>3</sub>)<sub>2</sub>-,

R<sub>16</sub> est un groupe alkylène en  $C_2$ - $C_{10}$ , oxaalkylène en  $C_2$ - $C_{10}$ , thiaalkylène en  $C_2$ - $C_{10}$ , arylène en  $C_6$ - $C_{12}$  ou alcénylène en  $C_2$ - $C_6$ ,

R<sub>17</sub> est un groupe alkylène en  $C_2$ - $C_{10}$ , phénylène, tolylène, diphenyléneméthane ou un groupe

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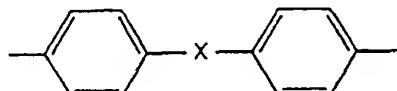
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10       $R_{18}$       est un groupe alkylène en  $C_2$ - $C_{10}$  ou un groupe alkylène en  $C_4$ - $C_{20}$  qui est interrompu par un ou plusieurs O,  
 $R_{19}$       est un groupe alcanetriyle en  $C_3$ - $C_{12}$ ,  
 $R_{20}$       est un groupe alcanetétrayle en  $C_4$ - $C_{12}$ ,  
 $R_{23}$       est un groupe alkylène en  $C_2$ - $C_{10}$ , un groupe phénylène ou un groupe

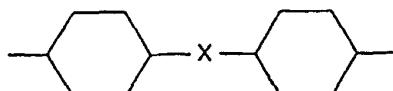
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ou

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$R_{24}$       où X est O, S,  $SO_2$ ,  $CH_2$  ou  $C(CH_3)_2$ , et  
est un groupe alkylène en  $C_2$ - $C_{14}$ , vinylène ou  $\sigma$ -phénylène.

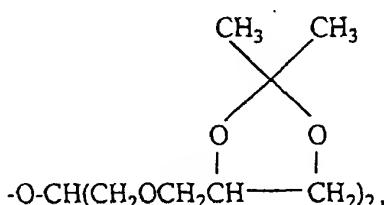
2. Une matière organique selon la revendication 1, dans laquelle le composé triazinique (b) est un composé de formule I dans lequel

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$n$       est de 1 à 4,  
 $R_1$  et  $R_2$       sont chacun, indépendamment de l'autre, H, OH ou un groupe alkyle en  $C_1$ - $C_4$ ,  
 $R_3$  et  $R_4$       sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en  $C_1$ - $C_4$ , un groupe alcoxy en  $C_1$ - $C_4$ , un halogène ou un radical  $-OR_7$ ,  
 $R_5$  et  $R_6$       sont chacun, indépendamment de l'autre, H ou un groupe alkyle en  $C_1$ - $C_4$ ,  
 $R_7$ ,      si  $n$  est 1, est

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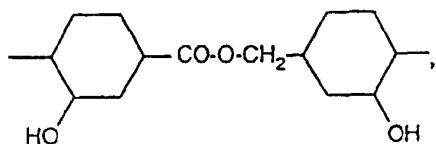
a) un groupe alkyle en  $C_1$ - $C_{18}$  qui est substitué par un ou plusieurs des groupes OH, alcoxy en  $C_1$ - $C_{18}$ , allyloxy, phénoxy, furyloxy,



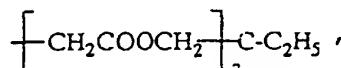
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- $COOR_8$ , - $CON(R_9)(R_{10})$  et/ou par - $OCOR_{11}$ ,  
b) un groupe alkyle en  $C_4$ - $C_{50}$  qui est interrompu par un ou plusieurs O et peut être substitué par OH et/ou un groupe glycidyloxy,

c) un groupe allyle, glycidyle ou benzyle,  
 d) un groupe cyclohexyle ou hydroxycyclohexyle, et si n est 2, R<sub>7</sub> est un groupe alkylène en C<sub>4</sub>-C<sub>12</sub>, alcénylène en C<sub>4</sub>-C<sub>6</sub>, xylolène, alkylène en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O et/ou substitué par OH, ou bien R<sub>7</sub> est un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>- , -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>15</sub>-OOC-CH<sub>2</sub>- ou



et si  $n$  est 3,  $R_7$  est un groupe



et si  $n$  est 4,  $R_7$  est un groupe



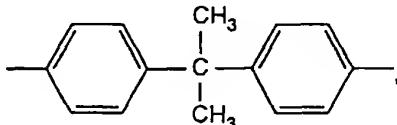
30  $R_8$  est un groupe alkyle en  $C_1$ - $C_{12}$ , alcényle en  $C_3$ - $C_{18}$ , alkyle en  $C_3$ - $C_{20}$  qui est interrompu par un ou plusieurs O et/ou substitué par OH, ou bien  $R_8$  est un groupe alkyle en  $C_1$ - $C_4$  qui est substitué par - $P(O)(OR_{14})_2$ ,

$R_9$  et  $R_{10}$  sont des groupes alkyle en  $C_1$ - $C_6$  ou bien  $R_9$  et  $R_{10}$  forment ensemble un groupe pentaméthylène ou 3-oxapentaméthylène,

35  $R_{11}$  est un groupe alkyle en  $C_1$ - $C_{12}$ , alcényle en  $C_2$ - $C_5$  ou phényle,

$R_{14}$  est un groupe alkyle en  $C_1$ - $C_{12}$ ,

$R_{15}$  est un groupe alkylène en  $C_2$ - $C_8$ , un groupe alkylène en  $C_4$ - $C_{50}$  qui est interrompu par un ou plusieurs O, ou un groupe



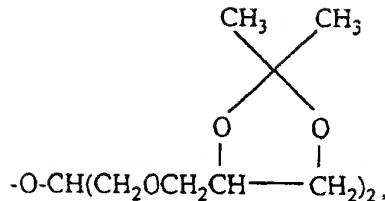
45 R<sub>16</sub> est un groupe alkylène en C<sub>2</sub>-C<sub>8</sub>, oxaalkylène en C<sub>2</sub>-C<sub>6</sub> ou thiaalkylène en C<sub>2</sub>-C<sub>6</sub>, et  
 R<sub>18</sub> est un groupe alkylène en C<sub>4</sub>-C<sub>8</sub> ou alkylène en C<sub>4</sub>-C<sub>12</sub> qui est interrompu par un ou plusieurs O.

3. Une matière organique selon la revendication 1, dans laquelle le composé triazinique (b) est un composé de formule I dans lequel

50       $n$       est 1, 2 ou 4,  
 $R_1$  et  $R_2$       sont chacun, indépendamment de l'autre, H ou  $CH_3$ ,  
 $R_3$  et  $R_4$       sont chacun, indépendamment de l'autre, H,  $CH_3$  ou Cl,  
 $R_5$  et  $R_6$       sont chacun l'hydrogène,  
55       $R_7$ ,      si  $n$  est 1, est

a) un groupe alkyle en C<sub>1</sub>-C<sub>14</sub> qui est substitué par un ou plusieurs des groupes OH, alcoxy en C<sub>1</sub>-C<sub>15</sub>, allyloxy, phénoxy, furyloxy,

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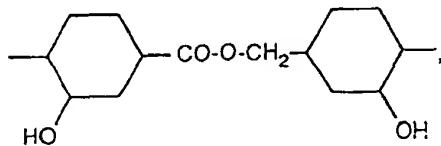
- COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) et/ou -OCOR<sub>11</sub>,
- b) un groupe alkyle en C<sub>6</sub>-C<sub>45</sub> qui est interrompu par un ou plusieurs O et peut être substitué par OH et/ou un groupe glycidyloxy,
- c) un groupe glycidyle ou
- d) un groupe hydroxycyclohexyle,

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et si n est 2, R<sub>7</sub> est un groupe alkylène en C<sub>6</sub>-C<sub>12</sub>, un groupe 2-buténylène-1,4, un groupe xylylène, un groupe alkylène en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O ou substitué par OH, ou bien R<sub>7</sub> est un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOC-

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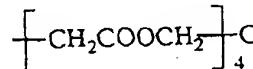
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et si n est 4, R<sub>7</sub> est

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R<sub>8</sub> est un groupe alkyle en C<sub>4</sub>-C<sub>10</sub>, un groupe oléyle, un groupe alkyle en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O et/ou substitué par OH, ou bien R<sub>8</sub> est -CH<sub>2</sub>P(O)(OR<sub>14</sub>)<sub>2</sub>,

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R<sub>9</sub> et R<sub>10</sub> sont des groupes alkyle en C<sub>2</sub>-C<sub>6</sub>,

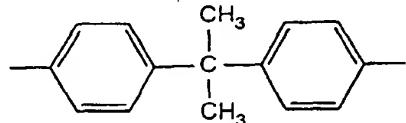
R<sub>11</sub> est un groupe alkyle en C<sub>6</sub>-C<sub>10</sub> ou alcényle en C<sub>2</sub>-C<sub>3</sub>,

R<sub>14</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>,

R<sub>15</sub> est un groupe alkylène en C<sub>2</sub>-C<sub>8</sub>, un groupe alkylène en C<sub>10</sub>-C<sub>45</sub> qui est interrompu par plus d'un O, ou est un groupe

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R<sub>16</sub> est un groupe alkylène en C<sub>4</sub>-C<sub>8</sub>, et

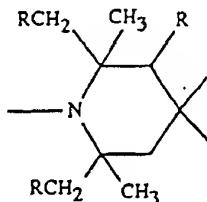
R<sub>18</sub> est un groupe alkylène en C<sub>4</sub>-C<sub>8</sub>.

55 4. Une matière organique selon la revendication 1, dans laquelle le composant (b) est un composé de formule I dans lequel n est 1 ou 2 et, si n est 1, R<sub>7</sub> est un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>-OR<sub>21</sub> où R<sub>21</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, allyle, phényle, furyle, alcanoyle en C<sub>6</sub>-C<sub>12</sub> ou alcénoyle en C<sub>3</sub>-C<sub>5</sub>, et, si n est 2, R<sub>7</sub> est un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>- où R<sub>15</sub> est tel que défini dans la revendication 1.

5. Une matière organique selon la revendication 1, dans laquelle le composant (b) est un composé de formule I dans lequel R<sub>1</sub> et R<sub>2</sub> sont l'hydrogène ou le groupe méthyle, R<sub>3</sub> et R<sub>4</sub> sont l'hydrogène, le chlore ou le groupe méthyle, et R<sub>5</sub> et R<sub>6</sub> sont l'hydrogène.

5 6. Une matière organique selon la revendication 1, dans laquelle le composant (a) est un composé contenant au moins un groupe de la formule

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20 dans laquelle R est l'hydrogène ou le groupe méthyle.

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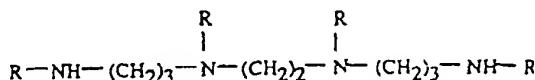
7. Une matière organique selon la revendication 6, dans laquelle R est l'hydrogène.

8. Une matière organique selon la revendication 6, dans laquelle le composant (a) est l'un des composés suivants :

25 succinate de bis(2,2,6,6-tétraméthylpipéridine-4-yle),  
sébacate de bis(2,2,6,6-tétraméthylpipéridine-4-yle),  
sébacate de bis(1,2,2,6,6-pentaméthylpipéridine-4-yle),  
butyl-(3,5-di-*tert*-butyl-4-hydroxybenzyl)malonate de bis(1,2,2,6,6-pentaméthylpipéridine-4-yle),  
sébacate de bis(1-octyloxy-2,2,6,6-tétraméthylpipéridine-4-yle),  
30 butane-1,2,3,4-tétracarboxylate de tétra(2,2,6,6-tétraméthylpipéridine-4-yle),  
butane-1,2,3,4-tétracarboxylate de tétra(1,2,2,6,6-pentaméthylpipéridine-4-yle),  
ester dodécylique d'acide N-(2,2,6,6-tétraméthylpipéridine-4-yl)- $\beta$ -aminopropionique,  
N-(1-octyloxy-2,2,6,6-tétraméthylpipéridine-4-yl)-N'-dodécyloxalamide,  
35 N-(2,2,6,6-tétraméthylpipéridine-4-yl)- $\alpha$ -dodécyllsuccinimide, 2,2,4,4-tétraméthyl-7-oxa-3,20-diaza-21-oxo-dispiro-[5.1.11.2]henéicosane,  
8-acétyl-3-dodécyll-1,3,8-triaza-7,7,9,9-tétraméthylspiro-[4.5]décane-2,4-dione,  
20-(dodécyloxycarbonyléthyl)-2,2,4,4-tétraméthyl-7-oxa-3,20-diaza-21-oxo-dispiro[5.1.11.2]henéicosane,

ou un composé de l'une des formules

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où R =

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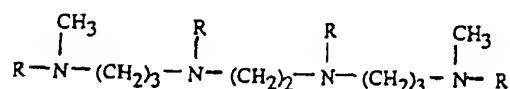
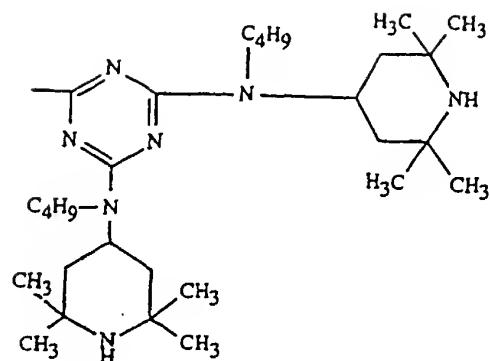
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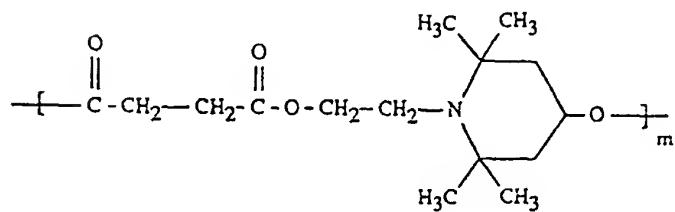
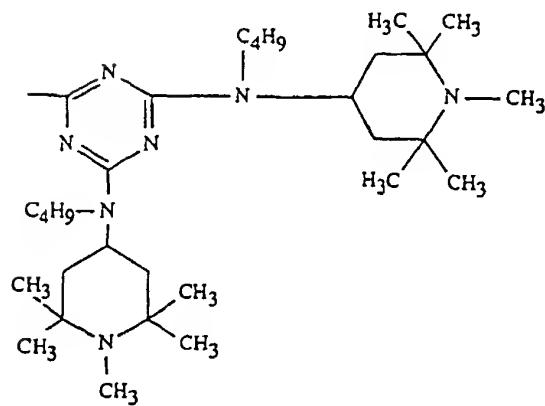
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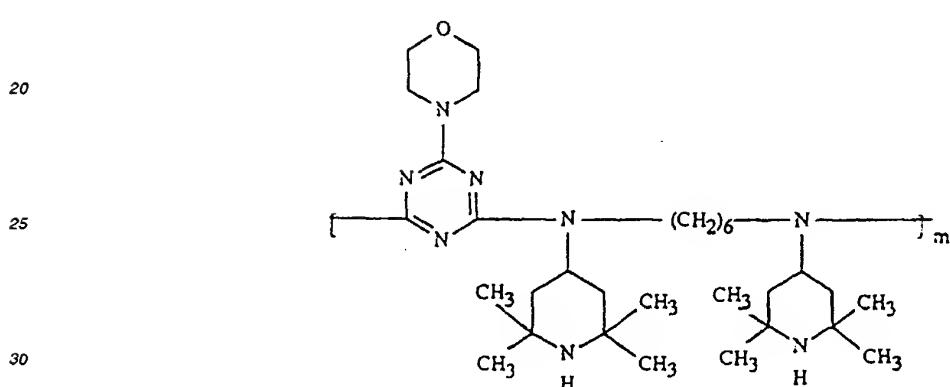
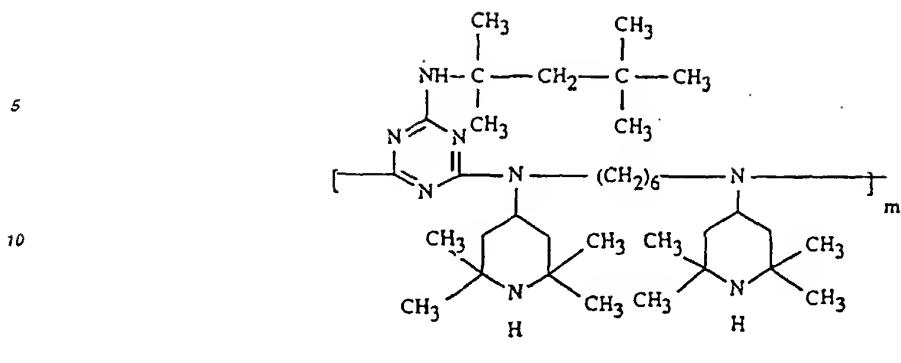
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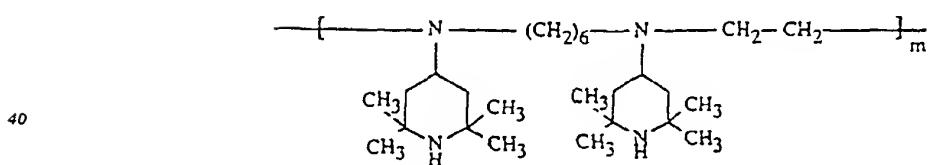
où R =

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9. Une matière organique selon la revendication 1, qui contient 0,01 à 5 % en poids du composant (a) et 0,02 à 5 % en poids du composant (b) par rapport à la matière.

10. Une matière organique selon la revendication 9, qui contient 0,02 à 2 % en poids du composant (a) et 0,05 à 3 % en poids du composant (b).

11. Une matière organique selon la revendication 1, dans laquelle la matière est un polymère organique.

12. Un polymère organique selon la revendication 11, qui, en plus des composants (a) et (b), contient également d'autres stabilisants, des charges, des agents de renforcement, des pigments, des colorants, des plastifiants, des solvants, des lubrifiants, des agents de réglage de l'écoulement, des agents d'avivage fluorescents, des agents de nucléation, des agents antiélectrostatiques ou des agents ignifugeants.

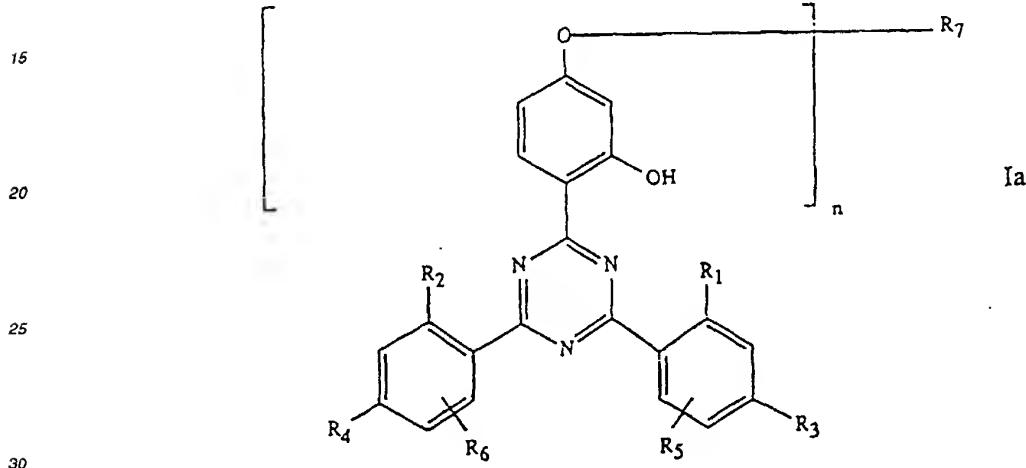
13. Un polymère organique selon la revendication 11, dans lequel le polymère est un liant de revêtement.

14. Une matière organique selon la revendication 1, dans laquelle la matière est une matière de revêtement durcissable par irradiation.

5 15. Une matière de revêtement durcissable par irradiation contenant une hydroxyphényltriazine de formule I telle que définie dans la revendication 1, en l'absence d'une amine à empêchement stérique.

10 16. Un procédé pour stabiliser une matière organique contre une dégradation provoquée par la lumière, la chaleur et l'oxygène, par l'addition des composants (a) et (b) tels que définis dans la revendication 1.

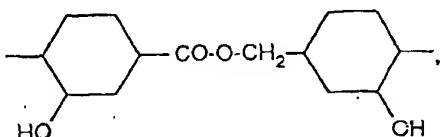
17. Un composé de la formule Ia



et, si  $n$  est 2,  $R_7$  est

5 a) un groupe alkylène en  $C_2$ - $C_{12}$ ,  
 b) un groupe alcénylène en  $C_4$ - $C_{12}$ ,  
 c) un groupe xylénène,  
 d) un groupe alkylène en  $C_3$ - $C_{20}$  qui est interrompu par un ou plusieurs O et/ou substitué par OH,  
 e) un groupe  $-CH_2CH(OH)CH_2O-R_{15}-OCH_2CH(OH)CH_2-$ ,  $-(CH_2)_m-COO-R_{18}-OOC-(CH_2)_m-$  (où  
 m est de 1 à 3) ou

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et, si  $n$  est 3,  $R_7$  est un groupe

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et, si  $n$  est 4,  $R_7$  est un groupe

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$R_8$  est un groupe alkyle en  $C_3$ - $C_{20}$  qui est interrompu par un ou plusieurs O, N ou S et peut être substitué par OH, ou bien  $R_8$  est un groupe alkyle en  $C_1$ - $C_4$  qui est substitué par  $-P(O)(OR_{14})_2$ ,  $-N(R_9)(R_{10})$  ou  $-OCOR_{11}$ , ou bien  $R_8$  est un groupe alcényle en  $C_3$ - $C_{18}$ , glycidyle ou phénylalkyle en  $C_7$ - $C_{11}$ ,

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$R_9$  et  $R_{10}$  sont chacun, indépendamment de l'autre, un groupe alkyle en  $C_1$ - $C_{12}$ , alcoxyalkyle en  $C_3$ - $C_{12}$ , dialkylaminoalkyle en  $C_4$ - $C_{16}$  ou cycloalkyle en  $C_5$ - $C_{12}$ , ou bien  $R_9$  et  $R_{10}$  forment ensemble un groupe alkylène en  $C_3$ - $C_9$  ou oxaalkylène en  $C_3$ - $C_9$  ou azaalkylène en  $C_3$ - $C_9$ ,

$R_{11}$  est un groupe alkyle en  $C_1$ - $C_{18}$ , alcényle en  $C_2$ - $C_{18}$  ou phényle,

$R_{12}$  est un groupe  $-R_{24}-COOH$  ou  $-NH-R_{17}-NCO$ ,

$R_{13}$  est un groupe alkyle en  $C_1$ - $C_{12}$ , aryle en  $C_6$ - $C_{12}$  ou alkaryle en  $C_7$ - $C_{14}$ ,

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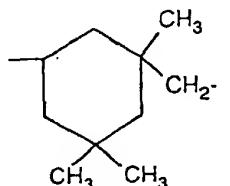
$R_{14}$  est un groupe alkyle en  $C_1$ - $C_{12}$  ou phényle,

$R_{15}$  est un groupe alkylène en  $C_2$ - $C_{10}$ , un groupe alkylène en  $C_4$ - $C_{50}$  qui est interrompu par un ou plusieurs O, ou bien  $R_{15}$  est un groupe phénylène ou un groupe -phénylène-X-phénylène- où X est  $-O-$ ,  $-S-$ ,  $-SO_2-$ ,  $-CH_2-$  ou  $-C(CH_3)_2-$ ,

$R_{17}$  est un groupe alkylène en  $C_2$ - $C_{10}$ , phénylène, tolylène, diphenyléneméthane ou un groupe

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$R_{18}$  est un groupe alkylène en  $C_2$ - $C_{10}$  ou un groupe alkylène en  $C_4$ - $C_{20}$  qui est interrompu par un ou plusieurs O,

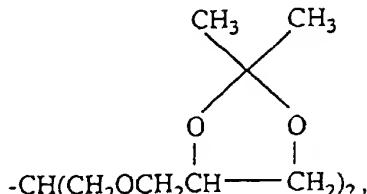
$R_{19}$  est un groupe alcanetriyle en  $C_3$ - $C_{12}$ ,

$R_{20}$  est un groupe alcanetétrayle en  $C_4$ - $C_{12}$ ,

$R_{21}$  est un groupe alkyle en  $C_1-C_{18}$ , un groupe alcényle en  $C_3-C_{18}$ , un groupe phényle ou un groupe phényle substitué par un groupe alkyle en  $C_1-C_{12}$ , alcoxy en  $C_1-C_{12}$  ou halogéné, ou bien  $R_{21}$  est un groupe alcanoyle en  $C_2-C_{19}$ , un groupe benzoyle, un groupe alcénoyle en  $C_3-C_{18}$ , un groupe furyle ou un groupe

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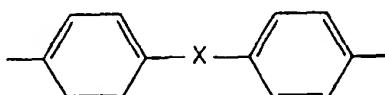
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R<sub>22</sub> est un groupe alcényle en C<sub>2</sub>-C<sub>5</sub>,  
 R<sub>23</sub> est un groupe alkylène en C<sub>2</sub>-C<sub>10</sub>, un groupe phénylène ou un groupe

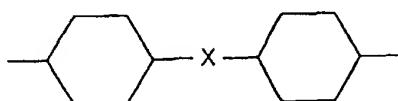
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où X est O, S, SO<sub>2</sub>, CH<sub>2</sub> ou C(CH<sub>3</sub>)<sub>2</sub>, et R<sub>24</sub> est un groupe alkylène en C<sub>2</sub>-C<sub>14</sub>, vinylène ou *o*-phénylène.

18. Un composé de formule la selon la revendication 17, dans lequel

n est 1 ou 2,  
 R<sub>1</sub> et R<sub>2</sub> sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> ou halogénométhyle,  
 R<sub>3</sub> et R<sub>4</sub> sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, alcoxy en C<sub>1</sub>-C<sub>18</sub> ou un halogène, et, dans le cas où n = 1, peuvent aussi être un radical -OR<sub>7</sub>,  
 R<sub>5</sub> et R<sub>6</sub> sont chacun, indépendamment de l'autre, H, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> ou un halogène,  
 R<sub>7</sub>, si n est 1, est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> qui est substitué par un groupe phén oxy qui n'est pas substitué ou est substitué par un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, alcoxy en C<sub>1</sub>-C<sub>18</sub> ou halogéno, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> qui est substitué par -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub> ou -N(R<sub>9</sub>)(R<sub>10</sub>), un groupe alkyle en C<sub>6</sub>-C<sub>20</sub> qui est interrompu par plus d'un O et est substitué par OH, un groupe glycidyle, un groupe cyclohexyle substitué par OH ou -OCOR<sub>11</sub>, un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub> ou un groupe -SO<sub>2</sub>R<sub>13</sub>, et, si n est 2, R<sub>7</sub> est un groupe alkylène en C<sub>2</sub>-C<sub>12</sub>, un groupe alcénylène en C<sub>4</sub>-C<sub>12</sub>, un groupe xylylène, un groupe alkylène en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par O et/ou substitué par OH ou un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>22</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-ou -(CH<sub>2</sub>)<sub>n</sub>-COO-R<sub>23</sub> ou

R<sub>5</sub> et R<sub>6</sub> sont chacun, indépendamment de l'autre, H, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> ou un halogène, si n est 1, est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> qui est substitué par un groupe phén oxy qui n'est pas substitué ou est substitué par un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, alcoxy en C<sub>1</sub>-C<sub>18</sub> ou halogéno, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> qui est substitué par -COOR<sub>9</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub> ou -N(R<sub>9</sub>)(R<sub>10</sub>), un groupe alkyle en C<sub>6</sub>-C<sub>20</sub> qui est interrompu par plus d'un O et est substitué par OH, un groupe glycidyle, un groupe cyclohexyle substitué par OH ou -OCOR<sub>11</sub>, un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub> ou un groupe -SO<sub>2</sub>R<sub>13</sub>, et, si n est 2, R<sub>7</sub> est un groupe alkylène en C<sub>2</sub>-C<sub>12</sub>, un groupe alcénylène en C<sub>4</sub>-C<sub>12</sub>, un groupe xylylène, un groupe alkylène en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par O et/ou substitué par OH, ou un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>- ou -(CH<sub>2</sub>)<sub>m</sub>-COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub>- où m est de 1 à 3, R<sub>9</sub> est un groupe alkyle en C<sub>2</sub>-C<sub>20</sub> qui est interrompu par O, N ou S et/ou substitué par OH, ou est un

R<sub>8</sub> est un groupe alkyle en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par O, N ou S et/ou substitué par OH, ou est un groupe alkyle en C<sub>1</sub>-C<sub>4</sub> qui est substitué par -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) ou -OCOR<sub>11</sub>, ou est un groupe alcényle en C<sub>2</sub>-C<sub>18</sub>, cycloïdylique ou phénylalkyle en C<sub>7</sub>-C<sub>11</sub>.

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R<sub>9</sub> et R<sub>10</sub> sont chacun, indépendamment de l'autre, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, alcooxyalkyle en C<sub>3</sub>-C<sub>12</sub>, dialkylaminoalkyle en C<sub>4</sub>-C<sub>16</sub> ou cycloalkyle en C<sub>5</sub>-C<sub>12</sub>, ou bien R<sub>9</sub> et R<sub>10</sub> forment ensemble un groupe alkylène en C<sub>3</sub>-C<sub>9</sub> ou oxaalkylène en C<sub>3</sub>-C<sub>9</sub> ou azaalkylène en C<sub>3</sub>-C<sub>4</sub>.

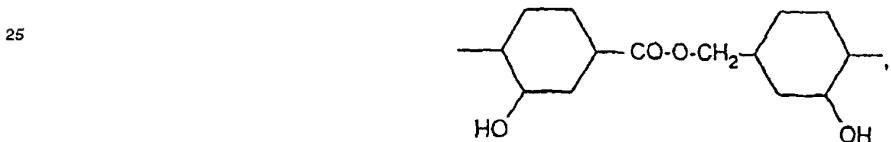
R<sub>11</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, alcényle en C<sub>2</sub>-C<sub>16</sub> ou phényle,

5      R<sub>13</sub>      est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, aryle en C<sub>6</sub>-C<sub>12</sub> ou alkaryle en C<sub>7</sub>-C<sub>14</sub>,  
       R<sub>14</sub>      est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> ou phényle,  
       R<sub>15</sub>      est un groupe alkylène en C<sub>2</sub>-C<sub>10</sub>, un groupe phénylène ou un groupe -phénylène-X-phénylène- où  
               X est -O-, -S-, -SO<sub>2</sub>-, -CH<sub>2</sub>- ou -C(CH<sub>3</sub>)<sub>2</sub>-,  
       R<sub>18</sub>      est un groupe alkylène en C<sub>2</sub>-C<sub>10</sub> ou un groupe alkylène en C<sub>4</sub>-C<sub>20</sub> qui est interrompu par O, et  
       R<sub>21</sub>      est un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, un groupe phényle, un groupe phényle substitué par un groupe alkyle  
               en C<sub>1</sub>-C<sub>12</sub>, alcoxy en C<sub>1</sub>-C<sub>12</sub> ou halogéno, ou est un groupe alcanoyle en C<sub>2</sub>-C<sub>12</sub>, benzoyle ou alcé-  
               noyle en C<sub>3</sub>-C<sub>5</sub>.

10     19. Un composé de formule la selon la revendication 17, dans lequel

15     n      est de 1 à 4,  
       R<sub>1</sub> et R<sub>2</sub>      sont chacun, indépendamment de l'autre, H, OH ou un groupe alkyle en C<sub>1</sub>-C<sub>4</sub>,  
       R<sub>3</sub> et R<sub>4</sub>      sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>4</sub>, un groupe alcoxy en C<sub>1</sub>-  
               C<sub>4</sub>, un halogène ou un radical -OR<sub>7</sub>,  
       R<sub>5</sub> et R<sub>6</sub>      sont chacun, indépendamment de l'autre, H ou un groupe alkyle en C<sub>1</sub>-C<sub>4</sub>,  
       R<sub>7</sub>      si n est 1, est un groupe alkyle en C<sub>1</sub>-C<sub>6</sub> qui est substitué par -COOR<sub>8</sub>, -COONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>)  
               ou -OCOR<sub>22</sub>, ou bien R<sub>7</sub> est un groupe glycidyle, hydroxycyclohexyle ou -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub>, et  
               si n est 2, R<sub>7</sub> est un groupe alkylène en C<sub>4</sub>-C<sub>12</sub>, alcénylène en C<sub>4</sub>-C<sub>6</sub>, xylylène, alkylène en C<sub>3</sub>-C<sub>20</sub>  
               qui est interrompu par un ou plusieurs O et/ou substitué par OH, ou bien R<sub>7</sub> est un groupe -CH<sub>2</sub>CH  
               (OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>- , -CH<sub>2</sub>COO-R<sub>16</sub>-OOCCH<sub>2</sub>- ou

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30     et si n est 3, R<sub>7</sub> est un groupe



et si n est 4, R<sub>7</sub> est un groupe

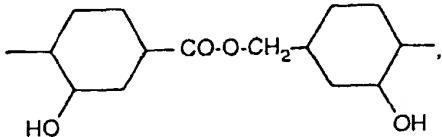


45     R<sub>8</sub>      est un groupe alkyle en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O et peut être substitué par  
               OH, ou bien R<sub>8</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>4</sub> qui est substitué par -P(O)(OR<sub>14</sub>)<sub>2</sub>, ou bien R<sub>8</sub> est un  
               groupe alcényle en C<sub>3</sub>-C<sub>18</sub>,  
       R<sub>9</sub> et R<sub>10</sub>      sont chacun indépendamment un groupe alkyle en C<sub>1</sub>-C<sub>8</sub> ou cyclohexyle, ou bien R<sub>9</sub> et R<sub>10</sub> forment  
               ensemble un groupe pentaméthylène ou 3-oxapentaméthylène,  
       R<sub>14</sub>      est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>,  
       R<sub>15</sub>      est un groupe alkylène en C<sub>2</sub>-C<sub>8</sub>, un groupe alkylène en C<sub>4</sub>-C<sub>50</sub> qui est interrompu par un ou plusieurs  
               O, ou bien R<sub>15</sub> est un groupe -phénylène-X-phénylène où X est -O-, -CH<sub>2</sub>- ou -C(CH<sub>3</sub>)<sub>2</sub>-,  
       R<sub>18</sub>      est un groupe alkylène en C<sub>4</sub>-C<sub>8</sub> ou un groupe alkylène en C<sub>4</sub>-C<sub>12</sub> qui est interrompu par un ou plu-  
               sieurs O,  
       R<sub>21</sub>      est un groupe alkyle en C<sub>4</sub>-C<sub>18</sub>, allyle, phényle, furyle, alcanoyle en C<sub>5</sub>-C<sub>19</sub> ou alcénoyle en C<sub>3</sub>-C<sub>5</sub>, et  
       R<sub>22</sub>      est un groupe alcényle en C<sub>2</sub>-C<sub>5</sub>,

55     20. Un composé de formule la selon la revendication 17, dans lequel

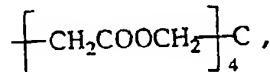
5           n           est 1, 2 ou 4,  
 R<sub>1</sub> et R<sub>2</sub>   sont chacun, indépendamment de l'autre, H ou CH<sub>3</sub>,  
 R<sub>3</sub> et R<sub>4</sub>   sont chacun, indépendamment de l'autre, H, CH<sub>3</sub> ou Cl,  
 R<sub>5</sub> et R<sub>6</sub>   sont chacun l'hydrogène,  
 R<sub>7</sub>,           si n est 1, est un groupe alkyle en C<sub>1</sub>-C<sub>4</sub> qui est substitué par -COOR<sub>8</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>) ou -O-COR<sub>22</sub>,  
 ou bien R<sub>7</sub> est un groupe glycidyle, 2-hydroxycyclohexyle ou -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub>, et si n est 2, R<sub>7</sub>  
 est un groupe alkylène en C<sub>6</sub>-C<sub>12</sub>, un groupe 2-butène-1,4-ylène, un groupe xylénène ou un groupe  
 alkylène en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O et/ou substitué par OH, ou bien R<sub>7</sub> est  
 un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CH<sub>2</sub>COO-R<sub>16</sub>-OOCCH<sub>2</sub>- ou

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20           et si n est 4, R<sub>7</sub> est un groupe

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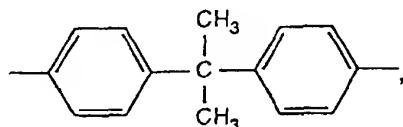


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R<sub>8</sub>           est un groupe alkyle en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O et peut être substitué par  
 OH, ou bien R<sub>8</sub> est -CH<sub>2</sub>P(O)(OR<sub>14</sub>)<sub>2</sub> ou un groupe oléyle  
 R<sub>9</sub> et R<sub>10</sub>   sont des groupes alkyle en C<sub>2</sub>-C<sub>6</sub>,  
 R<sub>15</sub>           est un groupe alkylène en C<sub>2</sub>-C<sub>8</sub>, un groupe alkylène en C<sub>10</sub>-C<sub>45</sub> qui est interrompu par un ou plusieurs  
 O, ou un groupe

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R<sub>18</sub>           est un groupe alkylène en C<sub>4</sub>-C<sub>8</sub>,  
 R<sub>21</sub>           est un groupe alkyle en C<sub>4</sub>-C<sub>15</sub>, allyle, phényle, furyle, alcanoyle en C<sub>5</sub>-C<sub>12</sub> ou alcénoyle en C<sub>3</sub>-C<sub>5</sub>, et  
 R<sub>22</sub>           est un groupe alcényle en C<sub>2</sub>-C<sub>3</sub>.

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21. Un composé de formule Ia selon la revendication 17, dans lequel n est 2.

22. Un procédé pour stabiliser une matière organique, en particulier des polymères organiques, contre une dégradation provoquée par la lumière, la chaleur et l'oxygène, par l'addition d'une *o*-hydroxyphényltriazine, qui comprend l'addition d'au moins un composé de formule Ia selon la revendication 17.

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23. Une matière organique contenant au moins un composé de formule Ia selon la revendication 17 comme stabilisant contre une dégradation provoquée par la lumière, la chaleur et l'oxygène.

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24. Un polymère organique en tant que matière selon la revendication 23.

25. Une matière organique selon la revendication 23, contenant 0,01 à 10 % en poids d'un composé de formule Ia, par rapport à la matière.

26. Un polycarbonate selon la revendication 24.

27. Une matière organique selon la revendication 23, qui est une matière de revêtement durcissable par irradiation.

28. L'utilisation des composés de formule Ia de la revendication 17 comme stabilisant pour matières organiques, en particulier pour polymères organiques.

5 29. Utilisation selon la revendication 28, comme stabilisant pour polycarbonates.

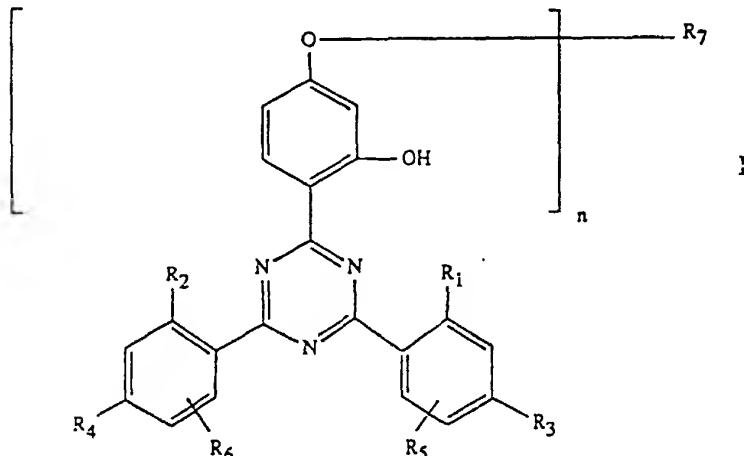
10 30. L'utilisation des composés de formule Ia de la revendication 17, comme stabilisant pour matière de revêtement durcissable par irradiation.

10 Revendications pour l'Etat contractant suivant : ES

15 1. Une matière organique qui a été stabilisée contre une dégradation provoquée par la lumière, la chaleur et l'oxygène et qui contient

(a) 0,01 à 5 % en poids d'au moins une amine à empêchement stérique du type polyalkylpipéridine, et  
 (b) 0,02 à 5 % en poids d'au moins une *o*-hydroxyphénol-s-triazine,

20 dans laquelle le composé triazinique (b) est un composé de la formule I



dans laquelle

n est de 1 à 4,

R<sub>1</sub> et R<sub>2</sub> sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, cyclohexyle ou trifluorométhyle,

R<sub>3</sub> et R<sub>4</sub> sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, cyclohexyle ou alcoxy en C<sub>1</sub>-C<sub>18</sub> ou un halogène, et, dans le cas où n = 1, peuvent aussi être un radical -OR<sub>7</sub>,

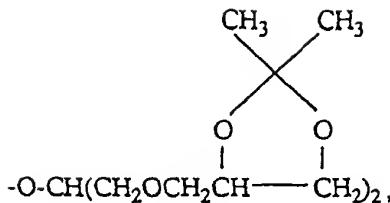
R<sub>5</sub> et R<sub>6</sub> sont chacun, indépendamment de l'autre, H, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> ou un halogène,

R<sub>7</sub>, Si n est 1, est

a) un groupe alkyle en C<sub>1</sub>-C<sub>18</sub> qui est substitué par un ou plusieurs des groupes OH, alcoxy en C<sub>1</sub>-C<sub>18</sub>, alcénoxy en C<sub>3</sub>-C<sub>18</sub>, halogéno, phénoxy (qui n'est pas substitué ou est substitué par un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, alcoxy en C<sub>1</sub>-C<sub>18</sub> ou halogéno), furyloxy,

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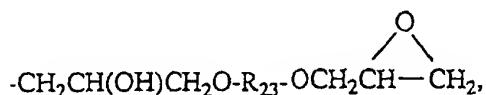
-COOH, -COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>), -NHCOR<sub>11</sub>, -CN et/ou par -O-CO-R<sub>11</sub>,

b) un groupe alkyle en C<sub>4</sub>-C<sub>50</sub> qui est interrompu par un ou plusieurs O et peut être substitué par OH et/ou un groupe glycidyloxy,

15

c) un groupe alcényle en C<sub>3</sub>-C<sub>6</sub>,  
d) un groupe glycidyle ou un groupe

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e) un groupe cyclohexyle qui n'est pas substitué ou est substitué par OH ou -OCOR<sub>11</sub>,  
f) un groupe phénylalkyle en C<sub>7</sub>-C<sub>11</sub> qui n'est pas substitué ou est substitué par OH, Cl ou CH<sub>3</sub>,  
g) -CO-R<sub>12</sub> ou  
h) -SO<sub>2</sub>R<sub>13</sub>.

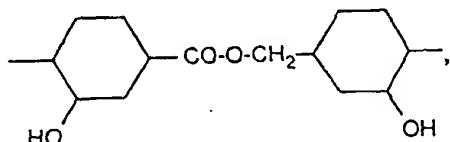
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et si n est 2, R<sub>7</sub> est

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a) un groupe alkylène en C<sub>2</sub>-C<sub>16</sub>,  
b) un groupe alcénylène en C<sub>4</sub>-C<sub>12</sub>,  
c) un groupe xylénène,  
d) un groupe alkylène en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O et/ou substitué par OH,  
e) un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CO-NH-R<sub>17</sub>-NH-CO- ou -(CH<sub>2</sub>)<sub>m</sub>-COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub> (où m est de 1 à 3) ou

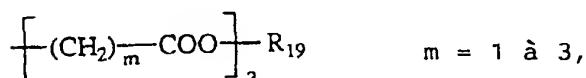
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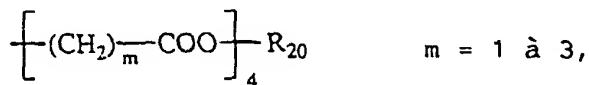
et si n est 3, R<sub>7</sub> est un groupe

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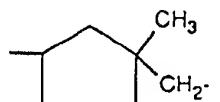


et si n est 4, R<sub>7</sub> est un groupe

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	$R_8$	est un groupe alkyle en $C_1$ - $C_{18}$ , un groupe alcényle en $C_3$ - $C_{18}$ , un groupe alkyle en $C_3$ - $C_{20}$ qui est interrompu par un ou plusieurs O, N ou S et/ou substitué par OH, un groupe alkyle en $C_1$ - $C_4$ qui est substitué par $-P(O)(OR_{14})_2$ , $-N(R_9)(R_{10})$ ou $-OCOR_{11}$ et/ou OH, un groupe alcényle en $C_3$ - $C_{18}$ , un groupe glycidyle ou un groupe phénylalkyle en $C_7$ - $C_{11}$ ,
5	$R_9$ et $R_{10}$	sont chacun, indépendamment de l'autre, un groupe alkyle en $C_1$ - $C_{12}$ , alcoxyalkyle en $C_3$ - $C_{12}$ , dialkylaminoalkyle en $C_4$ - $C_{16}$ ou cycloalkyle en $C_5$ - $C_{12}$ , ou bien $R_9$ et $R_{10}$ forment ensemble un groupe alkylène en $C_3$ - $C_9$ ou oxaalkylène en $C_3$ - $C_9$ ou azaalkylène en $C_3$ - $C_9$ ,
10	$R_{11}$ $R_{12}$	est un groupe alkyle en $C_1$ - $C_{18}$ , alcényle en $C_2$ - $C_{18}$ ou phényle, est un groupe alkyle en $C_1$ - $C_{18}$ , alcényle en $C_2$ - $C_{18}$ , phényle, alcoxy en $C_1$ - $C_{12}$ , phénoxy, alkylamino en $C_1$ - $C_{12}$ , arylamino en $C_6$ - $C_{12}$ , $-R_{24}-COOH$ ou $-NH-R_{17}-NCO$ ,
15	$R_{13}$ $R_{14}$ $R_{15}$	est un groupe alkyle en $C_1$ - $C_{12}$ , aryle en $C_6$ - $C_{12}$ ou alkaryle en $C_7$ - $C_{14}$ , est un groupe alkyle en $C_1$ - $C_{12}$ ou phényle, est un groupe alkylène en $C_2$ - $C_{10}$ , un groupe alkylène en $C_4$ - $C_{50}$ qui est interrompu par un ou plusieurs O, un groupe phénylène ou un groupe $-phénylène-X-phénylène-$ où X est $-O-$ , $-S-$ , $-SO_2-$ , $-CH_2-$ ou $-C(CH_3)_2-$ ,
20	$R_{16}$	est un groupe alkylène en $C_2$ - $C_{10}$ , oxaalkylène en $C_2$ - $C_{10}$ , thiaalkylène en $C_2$ - $C_{10}$ , arylène en $C_6$ - $C_{12}$ ou alcénylène en $C_2$ - $C_6$ ,
	$R_{17}$	est un groupe alkylène en $C_2$ - $C_{10}$ , phénylène, tolylène, diphenyléneméthane ou un groupe



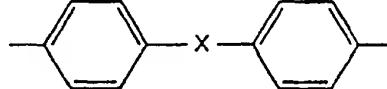
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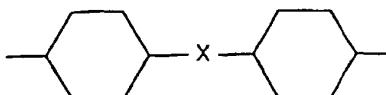
	$R_{18}$	est un groupe alkylène en $C_2$ - $C_{10}$ ou un groupe alkylène en $C_4$ - $C_{20}$ qui est interrompu par un ou plusieurs O,
	$R_{19}$	est un groupe alcanetriyle en $C_3$ - $C_{12}$ ,
	$R_{20}$	est un groupe alcanététrayle en $C_4$ - $C_{12}$ ,
	$R_{23}$	est un groupe alkylène en $C_2$ - $C_{10}$ , un groupe phénylène ou un groupe

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ou



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où X est O, S,  $SO_2$ ,  $CH_2$  ou  $C(CH_3)_2$ , et  
 $R_{24}$  est un groupe alkylène en  $C_2$ - $C_{14}$ , vinylène ou  $o$ -phénylène.

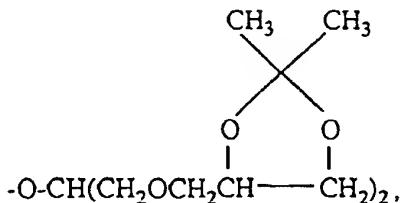
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2. Une matière organique selon la revendication 1, dans laquelle le composé triazinique (b) est un composé de formule I dans lequel

	$n$	est 1, 2 ou 4,
55	$R_1$ et $R_2$	sont chacun, indépendamment de l'autre, H ou $CH_3$ ,
	$R_3$ et $R_4$	sont chacun, indépendamment de l'autre, H, $CH_3$ ou Cl,
	$R_5$ et $R_6$	sont chacun l'hydrogène,
	$R_7$ ,	si n est 1, est

a) un groupe alkyle en C<sub>1</sub>-C<sub>14</sub> qui est substitué par un ou plusieurs des groupes OH, alkoxy en C<sub>1</sub>-C<sub>15</sub>, allyloxy, phénoxy, furyloxy,

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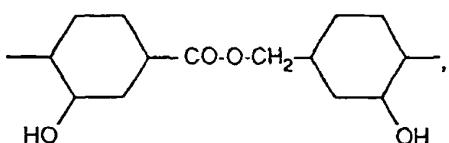
-COOR<sub>8</sub>-, -CON(R<sub>9</sub>)(R<sub>10</sub>) et/ou -OCOR<sub>11</sub>,

b) un groupe alkyle en C<sub>6</sub>-C<sub>45</sub> qui est interrompu par un ou plusieurs O et peut être substitué par OH et/ou un groupe glycidyloxy,  
 c) un groupe glycidyle ou  
 d) un groupe hydroxycyclohexyle,

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et si n est 2, R<sub>7</sub> est un groupe alkylène en C<sub>6</sub>-C<sub>12</sub>, un groupe 2-buténylène-1,4, un groupe xylylène, un groupe alkylène en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O ou substitué par OH, ou bien R<sub>7</sub> est un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-, -CO-R<sub>16</sub>-CO-, -CH<sub>2</sub>-COO-R<sub>18</sub>-OOC-CH<sub>2</sub>- ou

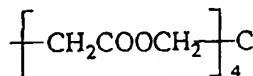
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et si n est 4, R<sub>7</sub> est

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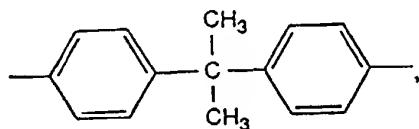


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R<sub>8</sub> est un groupe alkyle en C<sub>4</sub>-C<sub>10</sub>, un groupe oléyle, un groupe alkyle en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O et/ou substitué par OH, ou bien R<sub>8</sub> est -CH<sub>2</sub>P(O)(OR<sub>14</sub>)<sub>2</sub>,  
 R<sub>9</sub> et R<sub>10</sub> sont des groupes alkyle en C<sub>2</sub>-C<sub>6</sub>,  
 R<sub>11</sub> est un groupe alkyle en C<sub>6</sub>-C<sub>10</sub> ou alcényle en C<sub>2</sub>-C<sub>3</sub>,  
 R<sub>14</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>,  
 R<sub>15</sub> est un groupe alkylène en C<sub>2</sub>-C<sub>8</sub>, un groupe alkylène en C<sub>10</sub>-C<sub>45</sub> qui est interrompu par plus d'un O, ou est un groupe

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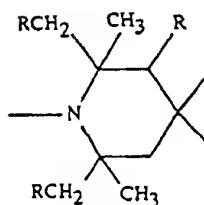
R<sub>16</sub> est un groupe alkylène en C<sub>4</sub>-C<sub>8</sub>, et  
 R<sub>18</sub> est un groupe alkylène en C<sub>4</sub>-C<sub>8</sub>.

3. Une matière organique selon la revendication 1, dans laquelle le composant (a) est un composé contenant au

moins un groupe de la formule

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dans laquelle R est l'hydrogène ou le groupe méthyle, de préférence dans laquelle R est l'hydrogène.

15 4. Une matière organique selon la revendication 1, dans laquelle la matière est un polymère organique.

5. Un polymère organique selon la revendication 4, dans lequel le polymère est un liant de revêtement.

6. Une matière organique selon la revendication 1, dans laquelle la matière est une matière de revêtement durcissable 20 par irradiation.

7. Une matière de revêtement durcissable par irradiation contenant une hydroxyphényltriazine de formule I telle que définie dans la revendication 1, en l'absence d'une amine à empêchement stérique.

25 8. Une matière organique qui a été stabilisée contre une dégradation provoquée par la lumière, la chaleur et l'oxygène, contenant 0,01 à 10 % en poids d'au moins un composé de la formule Ia

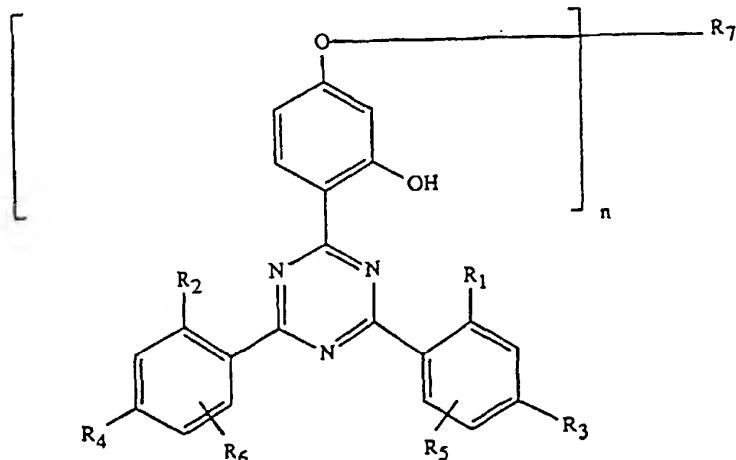
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Ia

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dans laquelle

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n est de 1 à 4,

R<sub>1</sub> et R<sub>2</sub> sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, cyclohexyle ou trifluorométhyle,

R<sub>3</sub> et R<sub>4</sub> sont chacun, indépendamment de l'autre, H, OH, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, cyclohexyle ou alcoxy en C<sub>1</sub>-C<sub>18</sub> ou un halogène, et, dans le cas où n = 1, peuvent aussi être un radical -OR<sub>7</sub>,

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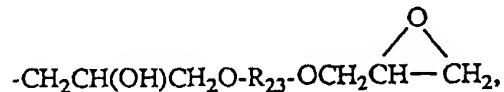
R<sub>5</sub> et R<sub>6</sub> sont chacun, indépendamment de l'autre, H, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> ou un halogène,

R<sub>7</sub>, si n est 1, est

a) un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> qui est substitué par un groupe phenoxy (qui n'est pas substitué ou est substitué par un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, alcoxy en C<sub>1</sub>-C<sub>18</sub> ou halogéno) ou par un groupe

-COOR<sub>8</sub>, -CONH<sub>2</sub>, -CONHR<sub>9</sub>, -CON(R<sub>9</sub>)(R<sub>10</sub>), -NH<sub>2</sub>, -NHR<sub>9</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) ou -O-CO-R<sub>22</sub>,  
 b) un groupe alkyle en C<sub>4</sub>-C<sub>50</sub> qui est interrompu par plus d'un O et peut être substitué par OH et/ou un groupe glycidyle,  
 c) un groupe glycidyle ou un groupe

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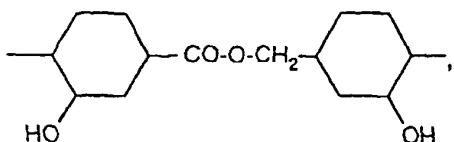
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d) un groupe cyclohexyle substitué par OH ou -OCOR<sub>11</sub>,  
 e) un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OR<sub>21</sub>  
 f) un groupe -SO<sub>2</sub>R<sub>13</sub>,  
 15 g) un groupe -CO-R<sub>12</sub>,

et, si n est 2, R<sub>7</sub> est

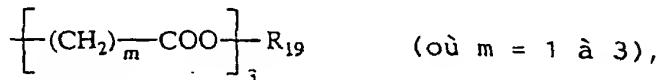
20 a) un groupe alkylène en C<sub>2</sub>-C<sub>12</sub>,  
 b) un groupe alcénylène en C<sub>4</sub>-C<sub>12</sub>,  
 c) un groupe xylylène,  
 d) un groupe alkylène en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O et/ou substitué par OH,  
 e) un groupe -CH<sub>2</sub>CH(OH)CH<sub>2</sub>O-R<sub>15</sub>-OCH<sub>2</sub>CH(OH)CH<sub>2</sub>-<sub>m</sub>-COO-R<sub>18</sub>-OOC-(CH<sub>2</sub>)<sub>m</sub>- (où  
 m est de 1 à 3) ou

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et, si n est 3, R<sub>7</sub> est un groupe

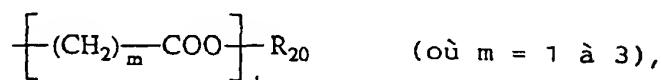
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et, si n est 4, R<sub>7</sub> est un groupe

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R<sub>8</sub> est un groupe alkyle en C<sub>3</sub>-C<sub>20</sub> qui est interrompu par un ou plusieurs O, N ou S et peut être substitué par OH, ou bien R<sub>8</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>4</sub> qui est substitué par -P(O)(OR<sub>14</sub>)<sub>2</sub>, -N(R<sub>9</sub>)(R<sub>10</sub>) ou -OCOR<sub>11</sub>, ou bien R<sub>8</sub> est un groupe alcényle en C<sub>3</sub>-C<sub>18</sub>, glycidyle ou phénylalkyle en C<sub>7</sub>-C<sub>11</sub>,

R<sub>9</sub> et R<sub>10</sub> sont chacun, indépendamment de l'autre, un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, alcoyoalkyle en C<sub>3</sub>-C<sub>12</sub>, dialkylaminoalkyle en C<sub>4</sub>-C<sub>16</sub> ou cycloalkyle en C<sub>5</sub>-C<sub>12</sub>, ou bien R<sub>9</sub> et R<sub>10</sub> forment ensemble un groupe alkylène en C<sub>3</sub>-C<sub>9</sub> ou oxaalkylène en C<sub>3</sub>-C<sub>9</sub> ou azaalkylène en C<sub>3</sub>-C<sub>9</sub>,

R<sub>11</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>18</sub>, alcényle en C<sub>2</sub>-C<sub>18</sub> ou phényle,

R<sub>12</sub> est un groupe -R<sub>24</sub>-COOH ou -NH-R<sub>17</sub>-NCO,

R<sub>13</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub>, aryle en C<sub>6</sub>-C<sub>12</sub> ou alkaryle en C<sub>7</sub>-C<sub>14</sub>,

R<sub>14</sub> est un groupe alkyle en C<sub>1</sub>-C<sub>12</sub> ou phényle,

R<sub>15</sub> est un groupe alkylène en C<sub>2</sub>-C<sub>10</sub>, un groupe alkylène en C<sub>4</sub>-C<sub>50</sub> qui est interrompu par un ou plusieurs



12. L'utilisation des composés de formule Ia de la revendication 8 comme stabilisant pour matières organiques, en particulier pour polymères organiques.
13. Utilisation selon la revendication 12, comme stabilisant pour polycarbonates.
- 5 14. L'utilisation des composés de formule Ia de la revendication 8 comme stabilisant pour matière de revêtement durcissable par irradiation.

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